The Publication for LightWave 3D, Aura, Flyer and Amiga Users

NewTekNIQUES

June/July 1999
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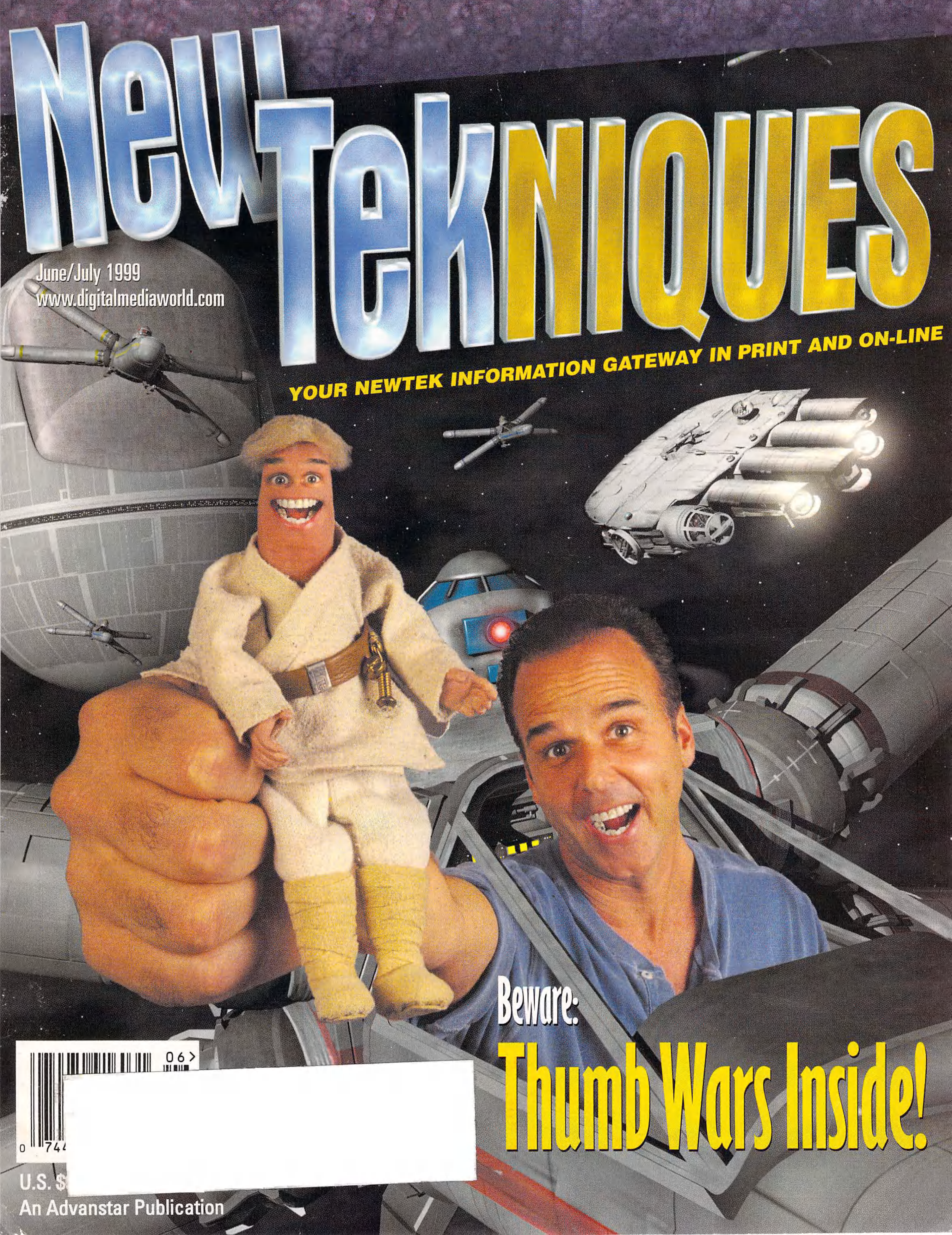

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Thumb Wars Inside!

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NewTekniques

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Access the bonus areas online. Opening June 25!

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ON THE COVER:

This issue's cover features Steve Oedekerk along with elements from his UPN TV Special, "Thumb Wars." Loke Groundrunner's costume was created by Gorg Dubin, Photography by Moto Studio of San Juan Capistrano. The Millenium Falcon looking ship was built by "Lightwave Dave" Adams. All additional CGI elements were created by Jeff Scheetz from designs by Geoffrey Kater. Cover Design and creation by Jeff Scheetz. Special thanks to Paul Marshal (producer of "Thumb Wars") for his assistance in the production of this cover.

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TekTALK

OPINIONS ON IMPORTANT NEWTEK ISSUES FROM THE ASSOCIATE PUBLISHER

BY **JOE TRACY**

A big welcome to the new editor of *NewTekniques.*

Continuing the Vision:
NEW NEWTEKNIQUES EDITOR

Being the founding editor of *NewTekniques*, with the opportunity to serve you, has been an outstanding honor. It came just after *Video Toaster User* and *LightWavePRO* had been shut down by another magazine company. Advanstar rode to the rescue, picking up where both those publications left off. My tenure has been both a joy and a challenge. Now I'm handing the editor responsibilities to a very talented person as I pursue some personal and professional goals, mostly aimed at Web education and marketing.

Introducing Dhomas Trenn

I met Dhomas in late 1998 when he approached me after a magazine he was a columnist for unexpectedly closed down. The sample articles he submitted to me were very well written and whenever I communicated with him via email, I had a response within two hours. As I explored his talents more, I discovered that like myself (and many *NewTekniques* readers), Dhomas was not a 9-5 person. He works hard day and night to accomplish his goals. With his excellent leadership and communication abilities, I decided to bring him on as founding editor of "The Gateway" section that was being added to the magazine. Consistently he had his section completed and to me weeks before his deadlines. He was an editor's dream come true.

Promotion to Editor

As editor of "The Gateway," Dhomas not only had his section in weeks before the deadline, but he also developed a solid online bonus section for "The Gateway" readers. He did this on his own time, which showed me the dedication he has for the readers. When an opportunity to fulfill one of my goals presented itself, I had to make a tough choice. The tough decision was to decrease my responsibilities with *NewTekniques.* The easy decision was to give Dhomas the reigns. Like myself, Dhomas is a NewTek product user. He is passionate about customer service and always goes beyond the call of duty. I know that *NewTekniques* will continue to thrive (and grow) under his leadership.

You can reach Dhomas at (506) 459-7088 or via email—dhomas@youngmonkey.ca.

LightWave 301 Note:

Due to a personal emergency, Scott Wheeler was unable to get his LightWave 301 column in time for this issue. So next issue you'll get two installments of his LightWave 301 series. Also look for a bonus tutorial from him in the *NewTekniques* bonus section.

Continuing as your associate publisher,

Joe Tracy

NewTekniques

VOLUME 3 • NUMBER 3 • Published by ADVANSTAR Communications
www.digitalmediaworld.com

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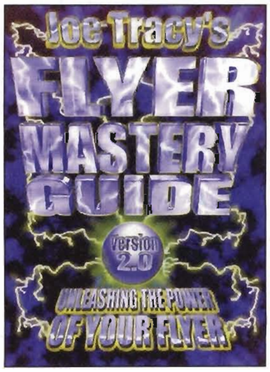

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Plugged In

LIGHTWAVE ADVANCEMENTS THROUGH PLUG-IN SCRIPT WRITING

Explosive LScript Programming - Part II

PROJECTILE MOTION

Continuing with explosions, we give KaBob a little something to Shish about.

BY BOB HOOD

In my last column (April/May 1999), I introduced the first half of an effector project known as "KaBob". However, without something upon which it can exert its influence, the effector will simply sit in your scene like a bump map on a log. In this concluding half, I will introduce the KaBob effectee script, and discuss some of the potential uses of this "projectile" system.

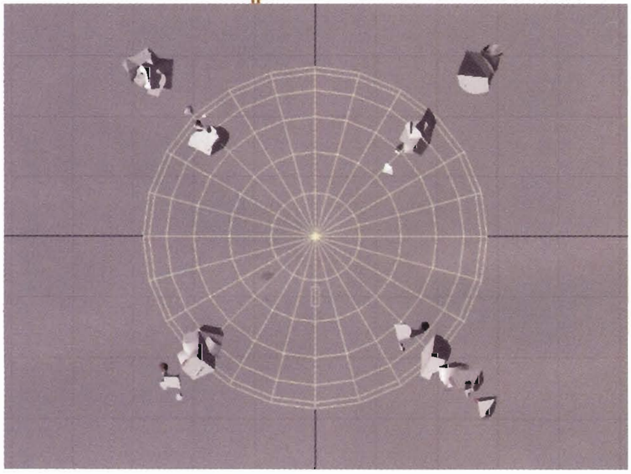


Figure 1.

Someone To Watch Over

The KaBob effectee script is presented in Listing 1; each object influenced by the effector must have a copy of this effectee script applied. The effectee script performs all the calculation processing in the KaBob effect. As you may recall, the KaBob effector performs little or no real calculations. It merely "broadcasts" its transformational parameters for others to use.

Lines 6-16 of Listing 1 establish some global variables that the effectee script will use. Lines 18-35 hold the create() function. Most of our global variables are initialized here. We will also grab the current frames-per-second setting of the scene to be used in later calculations. Note on lines 26, 27 and 28 that we access the effector's IPC Queue "KaBob" to reference working values that might have been set there by the user. In particular, we look for any frame delay settings, and for the degree-based rotational value to be used on our object.

Following create() is a user-defined function called reset() (lines 37-57). This function is used to reset all of our operational settings to their start-up values. Remember from the discussion

Figure 2.

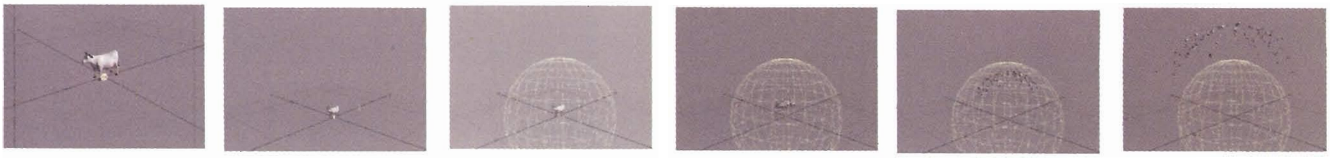
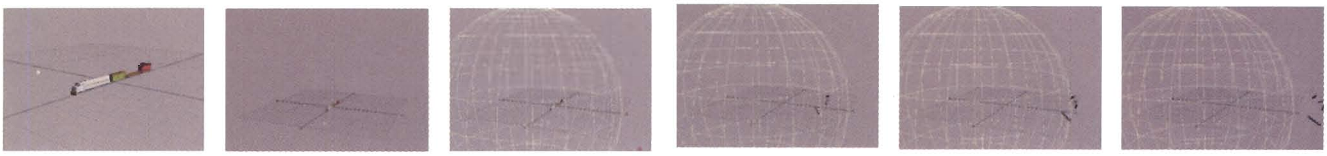


Figure 3



about the effector script that we do not precalculate all of our data for each frame in the scene. Instead, we function in a linear fashion, accumulating changes as the frame/time indices progress. The reset() function is used to remove these accumulations and prepare for a new run.

Proximity Alert!

The effectee script's real processing begins on line 59 of Listing 1: the process() function for the LS/IA script.

The first thing we do on line 61 is see if a reset is in order. Such a reset would be indicated by a time index of 0.0 (the start of everything). However, this reset is conditional upon the value of the 'origPos' global variable. If this variable holds its original LScript-assigned value of 'nil', then we know that this is our first cycle through the process() function, and execution of the function continues. However, if both tests succeed, then we restore the object to its original position, and call reset() before concluding our business.

On line 68, we check to see of the effector is active (using the IPC Queue mechanism). If it is not, we simply avoid any processing. This increases Layout's responsiveness in the interactive interface.

Next, on line 70, we grab the effector's position from the IPC Queue. We check on line 72 to see if this is the first time we have gotten this far. If so, we remember our starting position in the 'origPos' variable.

Learning To Fly

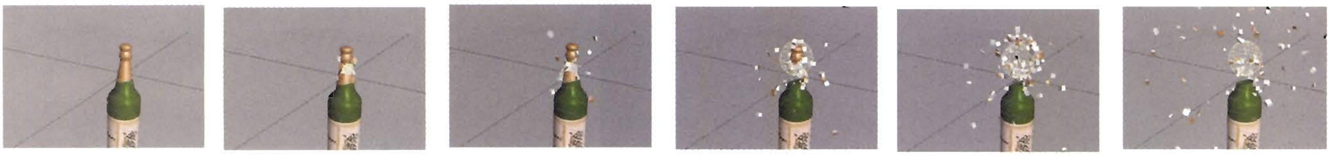
Line 75 calculates the distance between the object and the effector using the LScript vmag() function. We have used this function in nearly every project presented so far in this column. It is used to calculate the distance between two points in two or three-dimensional space.

Once we have this information, we can check to see if we have fallen under the effector's range of influence. Keep in mind that being within the effector's range does not mean we will necessarily regard the effector at that time. If a delay has been specified by the user (via the effector), then we may move further into the effector's range before its proximity becomes known to us.

Listing 1. The KaBob Effectee LScript

```
001: @warnings
002: @version 1.4
003:
004: @define NAME    "KaBob - Effectee"
005:
006: running;
007: origPos;
008: smallestDist;
009: startDelay,tickDelay,effectFrame,effectTime,
010: effectPos;
011: effectVec;
012: effectDist;
013: effectVelocity;
014: fps;
015:
016: rotation,rotStep,rotOrig;
017:
018: create
019: {
020:     setdesc(NAME);
021:
022:     running = false;
023:     origPos = nil;
024:     smallestDist = nil;
025:     startDelay = 0;
026:     if(KaBob$useDelay)
027:         startDelay = random(KaBob$minDelay,KaBob$maxDelay);
028:     rotOrig = KaBob$rotationrange;
029:     rotStep = <random(-rotOrig,rotOrig),
030:               random(-rotOrig,rotOrig),
031:               random(-rotOrig,rotOrig)>;
032:
033:     scene = getfirstitem(SCENE);
034:     fps = scene.fps;
035: }
036:
037: reset
038: {
039:     smallestDist = nil;
040:     running = false;
041:     effectFrame = -1;
042:
043:     startDelay = 0;
044:     if(KaBob$useDelay)
045:         startDelay = random(KaBob$minDelay,KaBob$maxDelay);
046:
047:     if(KaBob$rotationrange != rotOrig)
048:     {
049:         rotOrig = KaBob$rotationrange;
050:         rotStep = <random(-rotOrig,rotOrig),
051:                   random(-rotOrig,rotOrig),
052:                   random(-rotOrig,rotOrig)>;
053:     }
054:
055:     scene = getfirstitem(SCENE);
056:     fps = scene.fps;
057: }
058:
059: process: ma, frame, time
060: {
061:     if(time == 0.0 && origPos != nil)
062:     {
063:         ma.set(POSITION,origPos);
064:         reset();
065:         return;
066:     }
067:
068:     if(KaBob$active == false)  return;
069:
070:     effectorPos = KaBob$position;
071:
072:     if(origPos == nil)
073:         origPos = ma.get(POSITION,time);
074:
075:     dist = vmag(effectorPos - origPos);
076:
077:     if(!running && dist < KaBob$effectrange)
078:     {
079:         running = true;
080:         tickDelay = startDelay + 1;
081:     }
082:
083:     if(!running) return;
084:
085:     if(tickDelay)
086:     {
087:         —tickDelay;
088:         if(tickDelay) return;
089:
090:         effectTime = time;
091:         effectFrame = frame;
092:         effectPos = effectorPos;
093:         effectVec = effectPos - origPos;
094:         effectDist = vmag(effectVec);
095:         effectVelocity = KaBob$maxStep * (1.0 - (effectDist /
KaBob$effectrange));
096:
097:         rotation = ma.get(ROTATION,time);
098:     }
099:
100:     eventstep = (time - effectTime) * fps;
101:     newdist = effectDist +
102:               (effectVelocity * eventstep);
103:
104:     x = abs(newdist * (effectVec.x / effectDist));
105:     y = abs(newdist * (effectVec.y / effectDist));
106:     z = abs(newdist * (effectVec.z / effectDist));
107:
108:     locale = <x,y,z>;
109:
110:     if(effectVec.x >= 0.0) locale.x = -locale.x;
111:     if(effectVec.y >= 0.0) locale.y = -locale.y;
112:     if(effectVec.z >= 0.0) locale.z = -locale.z;
113:
114:     ma.set(POSITION,effectPos + locale);
115:
116:     ma.set(ROTATION,<rotation.x + (rotStep.x * eventstep),
117:                     rotation.y + (rotStep.y * eventstep),
118:                     rotation.z + (rotStep.z * eventstep)>);
119: }
```

Figure 4



Line 77 actually performs two tests. The obvious test is to check the range between the two objects using the results of the vmag() calculation. However, we also check the value of the 'running' variable. This variable is really a trigger flag. It gets set as soon as we detect a valid proximity between the two objects, and makes us aware that we have been effected. Once effected, there is no further need to check for proximal conditions.

If we have not fallen under the influence before now, then the tests on line 77 will succeed and we will set our 'running' state to 'true'. In addition, we set any delay factor into a working variable called 'tickDelay'. This value will be decreased on each invocation of the script until its value becomes zero (0). Note that we are adding one (1) to the value of the delay. This is done to offset the immediate decrease performed in the code that follows (on line 87).

Lines 85-88 deal with any delay trigger the user may have specified. Until 'tickDelay' has a value of zero, it will be decreased by one (1) each time through the process() function. When 'tickDelay' reaches zero, we need to remember the state of things at the time we began regarding the effector's influence. This snapshot occurs between lines 90 and 97.

Of particular note is the calculation performed on line 95. This calculation determines the velocity of the object. The velocity is calculated as a percentage of the 'maxStep' velocity value set in the effector. This percentage is based on the object's distance from the effector's center point, with the maximum range of the effector's influence representing 0%.

The remaining lines of the script (beginning at line 100) determine the correct position and, potentially, rotation of the object for the current invocation.

Everything's A Blur

In order to determine our position, we need to calculate an offset from our original position. The basis of this offset comes from the amount of time that has elapsed since we fell under the effector's influence (noted on line 90) and our particular per-frame velocity value.

The calculation on line 100 will derive a needed multiplier value based on the elapsed time. As the time elapsed increases, so should our distance from our point of origin. The multiplier we generate on line 100 reflects this.

One of the interesting quirks of LightWave's Item Animation plug-in architecture is how it reacts to an object's transformational changes when motion blur is enabled. Every invocation of the process() function is accompanied by two index values for the current render; one for the frame number, and one for the time index. One of the most disconcerting concepts about Item Animation is that there is not always a one-to-one relationship between these two indices. The time index may vary with any given frame index—in other words, you may be called twice for the same frame but with different time values!

This sub-frame processing is extremely important to Layout's motion blur calculation. The motion blur of an object is dependent upon changes in its motion between time indices. If you base the transformational changes of an object on the frame index alone, then you run the risk of setting the same values for an object between two or more time changes. This will have the unpleasant effect of disabling motion blur for that object because Layout will think it has ceased moving.

It is for this reason that the offset calculation on line 100 uses only the time index. This ensures that the object's motion will vary enough per call to allow motion blur to be used.

A Good Flight Plan

Line 101 (carried over on line 102) determines the distance we should have traversed by the current time index. It does this by first multiplying our local per-frame velocity by the value derived on line 100. This multiplication will increase the distance traveled by the object as the elapsed time increases. It places this value into the 'newdist' variable after adding it to the object's original distance from the effector.

The result of this calculation is the absolute distance from the center point of the effector to the position where the object should be at this time. Now, we cannot simply apply this value directly to all components of the object's position because it is likely that the object is not moving at an even rate along all three axes. Such a constant rate of change on all three axes would cause objects to move away from the effector in a manner similar to Figure 1. This is far from realistic motion for an explosion.

Instead, we must perform some vector math in order to apply the correct offset amount to each axis. This individual offset will keep the object moving in the direction of the vector created by the center point of both objects. Lines 104-106 apply these measured amounts to each axis, returning the new absolute locations in three-dimensional space.

The calculations performed thus far have left the object's new location, assigned to the 'locale' variable on line 108, potentially incorrect with regard to the sign of its values. Indeed, in most cases, the sign of each axis has been inverted as a result of the subtraction that took place on line 93. To correct this, lines 110-112 invert the sign of each calculated axis value based upon the condition of corresponding values in the 'effectVec' vector. This will ensure that the object will continue to move in the expected direction.

Line 114 actually applies the result of all of these calculations, giving us a new position for the object at the current time index.

Line 116 generates the rotational values for the object using similar calculations.

However, because the results are simple rotations, the calculations themselves are far less involved.

I Can See My House!

Ok, so now we're ready to blow some things up. Figures 2, 3 and 4 illustrate some animation sequences (in Layout OpenGL format) using the "KaBob" system.

The sequence in Figure 2 shows the cow object being blasted using an effector just below the object. The scale of the effector is tied to the scale of the Layout object to which it is attached, so we can size the object up between two frames such that it completely engulfs the cow and its countless pieces. We have also set the delay to zero, so all pieces of the cow are effected at the same time—instantly.

No objects in Figure 3 were broken into pieces. Instead, the four individual objects as a whole were managed by effectee scripts. The effect here is some blast effect, or high-speed wind, blowing the train from its tracks. Note the scale and distance of the effector from the individual objects. This was done so that the effect would be as evenly distributed across the objects as possible. I used 10 meters as the maximum velocity, and 5 degrees as the maximum rotation, to convey the size and mass of the objects.

The Figure 4 sequence actually uses the same effector in three different locations at three different points in the animation. Setting the effector's size to something quite small (small enough so that no objects fall within it), I placed it directly into a cluster of objects where it lies dormant, disturbing no object, until its size is suddenly scaled up. Immediately following the first blast, I scaled the effector back down, moved it to another location, and then performed another scale. The same technique was used for the third and final blast at the top of the bottle.

Go Forth And...Destroy

The LightWave plug-in API doesn't provide any means of assigning a plug-in to an object programmatically. So, in order to construct the scenes depicted in Figures 2 and 3, I used a modified version of the Modeler 'breakup.ls' script that is shipped with LightWave. It creates the effector object in the scene, and assigns the effector script to each new object created.

"KaBob" has many interesting possibilities. If you come up with any, please let me know. I always enjoy hearing about how my "kids" are doing.

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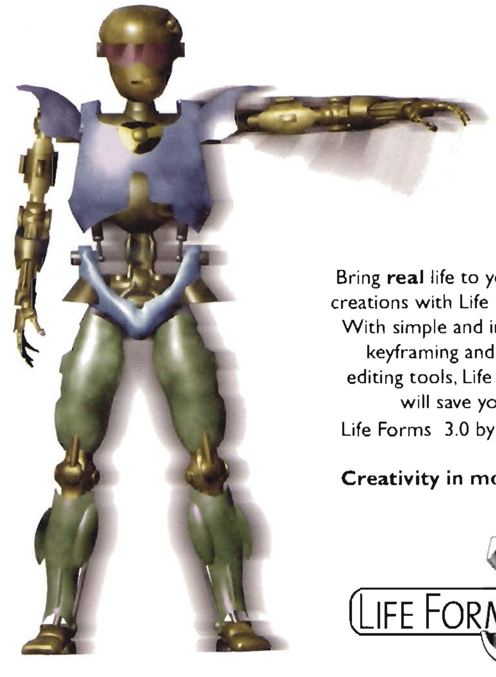

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LIGHTWAVE SUCCESS IN THE COMPETITIVE TV & FILM F/X MARKET

An inside look at the all-CGI "Starship Troopers" series.

BY
GREG NELSON

STARSHIP TROOPERS

BRINGING CG CHARACTERS TO LIFE

I've got to be honest, the first time I heard about Starship Troopers, I remember thinking, "A completely computer generated series, that looks photo-realistic? This is either going to be one of the greatest achievements in television history, or one of television's greatest disasters."

But, as more and more of my friends started migrating to Foundation Imaging and Flat Earth Productions to work on the show, I began to think that maybe this could work. Now, with the number of digital artists working on the production having grown to nearly 200, I honestly believe they have a chance of making it a success.

Based on Paul Veerhoven's feature film of the same name, the Starship Troopers television series shares more than just the name, it shares the same basic premise, "Bugs are evil, they must be destroyed." So, as Earth's way of life is threatened, the members of the bug killing infantry will fly far across space and time to kill bugs, lots of bugs.

Every time I visit Foundation Imaging, I leave with a great impression. The last time I was there, Foundation's artists were hard at work on Ron Thorton's film, Vortex. I believe I said something along the lines of, "Vortex will change LightWave forever". Well, it has. The quality of their work and the level of creative thinking is always very evident in what ends up on-screen.

Motion Capture

One of the areas that is truly coming to life now, is motion capture. Here, there is a distinct cross-over from what Foundation's artists learned while creating Vortex, to what is now being applied to Troopers.

One element of motion capture that has always been difficult is the interaction of a character with an object. For example, putting a rifle or shotgun into the hands of a character. An actor wearing a motion capture suit, only represents the physical movements of the CG character. So, the actor's hands have to be locked into position if the CG character is holding something. Should the actor's hands move out of position during a capture session, the polygons of the CG character will rip right through the polygons of the rifle or shotgun. Obviously, this wouldn't be good.

To fix this, rifles and other weaponry are carved from wood, to the exact size and shape of the weaponry in the CG world. These woodcarvings act much like a splint, keeping the actor's hands in place, the result of which makes the animator's job much easier.

Once the motion capture data has been gathered, it can then be applied to a Starship Trooper character in whatever shot that character happens to be in.

Facial Animation

While one animator is dealing with the body movements and gestures of a particular character in a shot, another animator is working on the facial animation for that same shot.

Since Foundation has a "no secrets" policy, I had the chance to sit down with two of their animators, Russell Isler and Jake Bergman, and talk about their approach to facial animation and what it takes to truly make a character come to life.

Probably the easiest way to animate facial expression is through the use of Morph Gizmo. Once a character has been established, the modelers are given a list of that character's required facial movements.

Usually, this list contains a wide variety of facial expressions - anything from fear to anger to excitement. The list also includes lip and mouth movement positions, through the entire range of a mouth's movement while speaking.

These speech movements also include ranges of emotion, so if a character is happy and saying the word "Hello" they have a morph target called "Happy Hello," if he's angry, there's "Angry Hello". Now, when you consider the amount of facial positions required to create life-like speech, and then multiply that by at least ten different characters, you begin to get an idea of how much work this involves.

For making all the realistic skin movements that are necessary for these morph targets, Russell's preference is Modeler's Vortex tool. He said that by using the Vortex tool, you can constrain the proportions in such a way that it allows you to move the polygons around the contours of the face - a movement, he believes, that much more closely matches the movement of actual skin and flesh.

The Voices

Once the modeling is done, the realism of the animation then depends very heavily on the skills of the actors providing voices for the characters.

During the voice-over sessions, the actors are video taped. Usually, the taping requires at least two cameras. One camera is set up with a wide view, to capture the actor's body expressions. The other camera provides a close-up of the actor's face, to give the animators the information they need to mimic the facial expressions.

Jake emphasized how a good actor makes his job easier. If an actor truly understands the subtleties of squinting the eyes or furrowing the brow while delivering his or her lines, that kind of information directly translates to the realism of the on-screen character.

Once an actor has delivered his lines, Jake, Russell or any of the other animators will go through that video tape frame by frame, and adjust all the morph targets in Morph Gizmo to exactly match the facial expressions of the actor.

Impressions

Even though it requires an extensive amount of work to get LightWave to the level where it can do convincing character animation, the end result can be extremely impressive. Although other animation packages are significantly better suited to this kind of animation than LightWave is, I don't think there is another program that can turn out as many shots, with the same quality, in such a short amount of time.

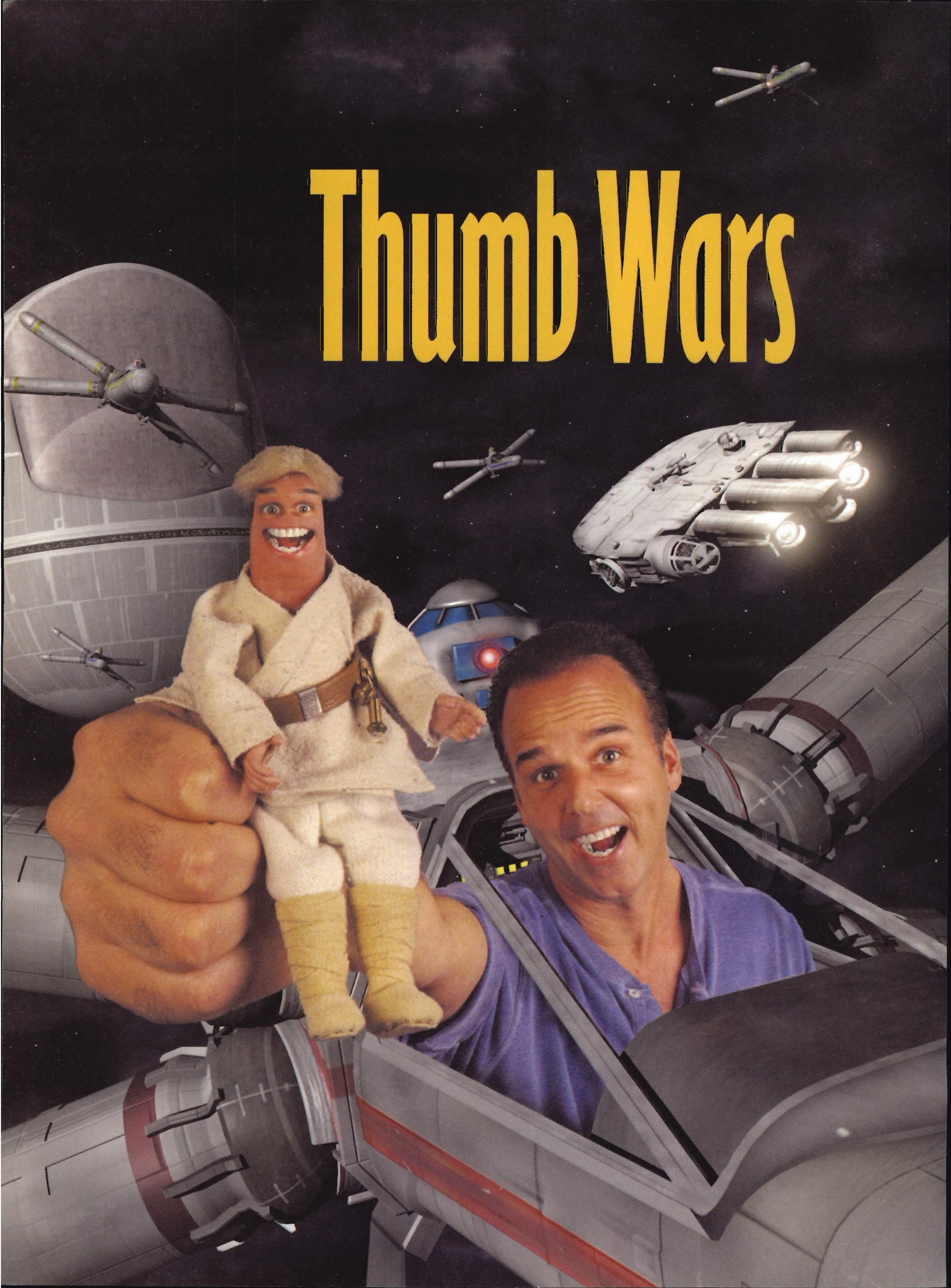
Perhaps as an attempt to down-play the extreme violence of this series, the human characters never really find themselves in any significant jeopardy. There is, however, one story-line that revolves around a human character being killed by a bug; which allows the show's main character, Rico, to step into the spotlight and become the new leader. But, when it comes to death, the bugs won't be so fortunate.

This is going to be a head ripping, jaw crushing, green goo squirting extravaganza, where all methods of destruction will be aimed at the evil bugs. As impressed as I am with the overall quality of the animation, and what it is going to do for the advancement of LightWave, I have a significant concern about the level of violence - it will require some serious parental supervision.

I am, however, awe-struck by the level of detail, the quality and realism of animation done by Foundation Imaging. Their work on Starship Troopers, is no exception. Once again, they are pushing the limits of what LightWave can do.

Starship Troopers, the television series, will begin airing in September and is currently scheduled to air 40 episodes.

Greg Nelson is a senior animator for Threshold Digital Research Labs.
You can email him at Kidneyboy@msn.com


Thumb Wars

THUMBVILLE, USA

BY DICK DE JONG AND
MOLLY DINKINS

"Thumbville, USA". With such a warm, welcoming name on the door, you expect Thumbelina herself to greet you. Instead, a bloody rubber hand hails you from the window. It's missing its thumb, a casualty of the intergalactic combat in which decent, upstanding thumbs laid down their lives for liberty.

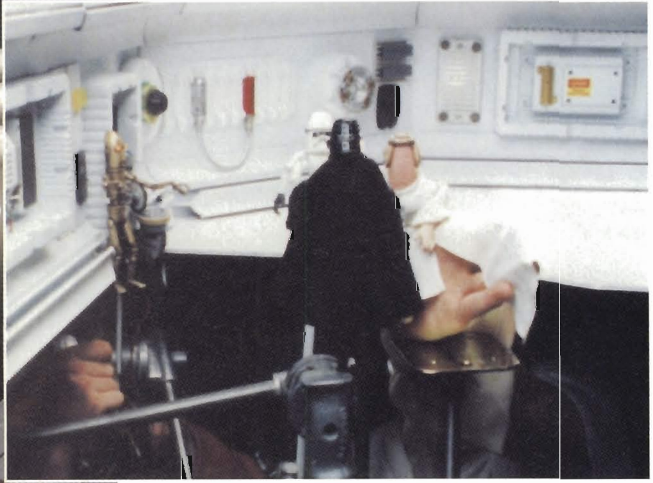
The battlefield, is a studio in a rustic office park in San Juan Capistrano—the home of O Entertainment, the budding brain child of Steve Oedekerk. Inside Thumbville, animators, compositors, and editors were feverishly working their fingers to the bone to finish Thumb Wars, a hilarious parody of the original Star Wars films.

Starring Loke Groundrunner, Princess Bunhead, and Hand Duet, this epic half-hour TV special premiered on UPN the night before Phantom Menace opened. With a cast full of thumbs, chins, and even vegetables, the show is a combination of the Marx Brothers and Salvador Dali—fall-down funny and twisted surreal—and it is all Steve Oedekerk.

In addition to writing the script, Oedekerk played a handful of characters; and in one disarming scene, he stars as the bossy big toe and his four other toady toes. "The little toe is the cowering embodiment of fear," Oedekerk described.

Thumb Wars is not the first O Entertainment

thumb parody. Those attending LightWave Theater at the DCC Expo last December were delighted by the trailer for Thumbtanic. These salutes to Hollywood blockbusters had humble beginnings.



"Steve came to Scott Dalton and me," explained Dave Merrell, Visual Effects Supervisor for Thumbtanic and Thumb Wars, "and said, 'I want to develop a show around thumbs. Let's make a family of thumbs.' The production was going to be simple and low budget."

The initial task was to create the thumb look and invent a thumb technique. "At first, we tried CGI and spent a lot of time with Photoshop," Merrell explained. "Then we chose to go with the human face on the thumb. We experimented with putting the whole face on the thumb, but it really looked freaky. "You could see the effect," Oedekerk said. "I didn't want it to look like a human face on a thumb. I wanted the thumbs to become creatures."

"The full face was so small that you lost the facial features," he continued. "Now it's two eyes (close together) and a mouth - sort of like a happy face. By exaggerating the eyes, the face is more cartoony."

Even though Oedekerk had an idea for a sitcom called The Thumbersons, where the main family would all be thumbs, the first project to set sail was Thumbtanic.

"While we were at Electric Eye, Scott and I produced the Thumbtanic trailer," Merrell said. "We worked on and off for about nine months."

During the Thumbtanic production, Oedekerk had the idea to make a Thumb Wars full-length film. "We originally did tests shooting on 35mm and projected it on the screen. It looked great," Merrell said. They wanted it ready for the Phantom Menace release, "but we just didn't have enough time, especially dealing in film resolution," Oedekerk said.

The idea was dropped and Oedekerk and Producer Paul Marshal started the principal shooting on Thumbtanic. In the meantime, Oedekerk discussed Thumb Wars with Tom Nunan, the President of UPN. Nunan immediately thumbtacked the project to the network's schedule and the race was on.

If the Thumbellion against the Thumpire was to be successful, thumb-sized sets, spaceships, and costumes had to be created at warp speed. 2D artists had to be rounded up and trained in thumb compositing techniques. LightWave artists had to be recruited to model and animate the outer space scenes. Computer networks had to be purchased and integrated into the production pipeline.

The first step in the production phase was to shoot the actors as they were reading dialogue. To facilitate the compositing process, the actors' heads needed to be as still as possible. To constrict movement, the Headlock 2000 was built - a primitive wooden contraption into which the actors squeeze their heads. This device looks like a cross between the Puritans' stocks and a guillotine head rest.

The Beta footage was fed to Avid editing bays and the dialogue was edited into a rough cut and used for timing accuracy. During the shooting of the thumbs, the audio rough cut was played back as a reference, so that the thumbeteers could stay in sync with the dialogue.

Shooting the thumbs was tricky. "Long thumbs are helpful - it's hard to hide the fist," Merrell explained. "One day, Paul glanced over at the tape operator and cast his long thumb on the spot."

Then there were the sheer logistics of shooting crowd scenes. How many thumb bodies attached to arms connected to

It Takes a Community to Raise a Thumb

Oedekerk's success must be attributed in part to his ability to assemble talented people into an effective team. Thumb Wars required a crack squadron of LightWave artists to model and animate the Thumbellion's Finger Fighters, Fist Fighter, and Hover Thumbs, and on the dark side, the Death Thumb. In doing so, Oedekerk returned to his roots to find the team.

"Long ago in a galaxy far away, we all belonged to the same LightWave/Amiga user group," LightWave legend, Susan Ishida recounted. "That was probably almost ten years ago. We were all fairly new to LightWave and just trying to figure out how to make stuff work."

"Of course, the LightWave community is pretty close knit, and we eventually ended up working on one of his projects, Santa vs. the Snowman," she said. Ishida and partner Joe Clasen teamed with Oedekerk and John Davis, co-owner of DNA Productions, on this all LightWave, 1997 ABC Christmas special. "We love Steve's projects, because they're always so funny and goofy."

"Our best contribution to Thumb Wars was just to help bring some terrific people to Steve's attention - like Brian Thomas and Dale Hendrickson," Ishida said. Most appropriately, Ishida connected Oedekerk with Walter Williams, the creator of Mr. Bill. "He'd just finished doing a series for the Fox Family Network and was looking for a buyer for his render rack and workstations. They worked out a deal that benefited them both."

Geof Kater, 3D Modeler Supervisor, spearheaded the construction of the space ships in Thumb Wars. Geof created the Hand and did most of the original designs for the rest of the spacecraft, Marshal said. Oedekerk also contacted Foundation Imaging veteran, Jeff Scheetz, his old Oedebattle buddy from steve.oedekerk.com, the NBC special. Along with their modeling duties, Scheetz and Dave Adams animated all of the outer space shots. Scheetz also recreated the famous trench scene. The biggest problem was worrying about being too specific, Scheetz said. Steve altered it by adding some thumb elements.

Most of the LightWave work was accomplished from long distance. "Most of the animators would send the models and scene files on Jaz or Zip disks, though one artist did email them to us," Brian Thomas, O's Director of Technology, explained. "We rendered all the 3D shots on our nine DEC Alphas."

Telecommuting is becoming more common around O Entertainment since they have set up shop in San Juan Capistrano, an old mission town about half way between Los Angeles and San Diego. Ishida said, "Telecommuting works out incredibly well. Our home studio is a small but fully functional Death Star. For us, it's the only sane way to work. We have cable modems and between that, phone, FAX, and courier, we can get and receive work quickly and reliably."

Scheetz, who has been supervising a team at Foundation, tends to prefer the atmosphere of the studio environment, because he thinks that it is good "to have people in a room with you to work on things. I learn so much seeing other people's work around me."

Davis has been telecommuting with O Entertainment for several years and has it both ways; surrounded by artists at his DNA Studio in Dallas, Texas, and using the internet, courier, and fax to keep in touch with Oedekerk.

Of course, with Oedekerk, future telecommuting plans typically include exploring revolutionary possibilities. "Steve's looking for a software solution where we can be at different sites and take turns working live from the same screen, using a speaker phone to talk to each other," said Davis. Who knows, in the next century, Oedecommunicating may be the next best thing to being there.

Ultimately, what makes the process work so successfully is that Oedekerk not only finds the talent, but he also trusts them. "Steve lets people do what they do best," Davis explained. "He said, 'write, direct, and run with it.' His notes are smart and few. We have lots of freedom to incorporate our ideas and have fun."

thumbspians can you fit under a set? "We were sometimes shooting ten to twelve characters at a time," Marshal said - That's five or six bodies squeezed under a table.

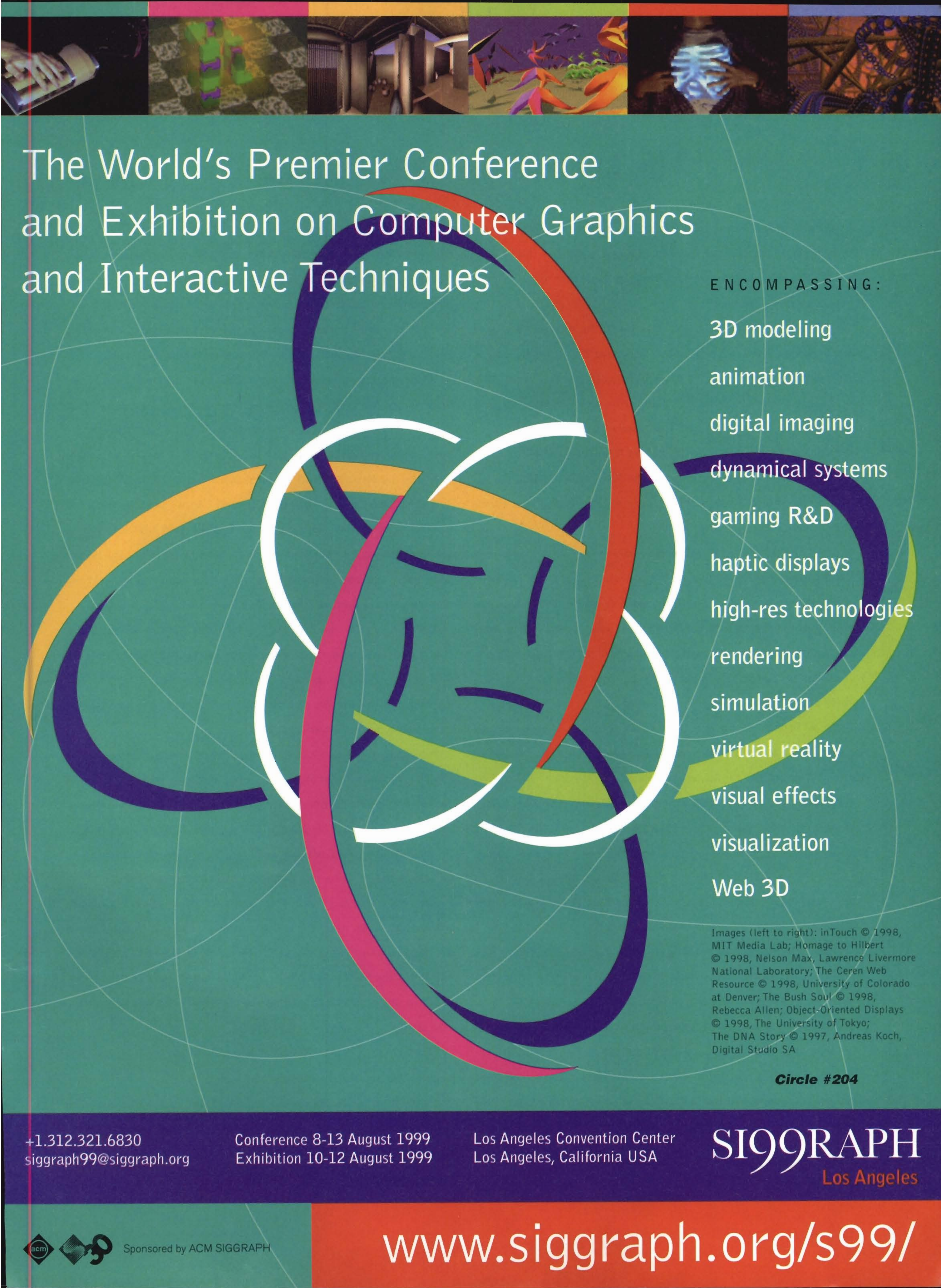
"We were shooting with a macro lens, so if you were off your mark one inch, the shot was screwed," he added. "You also have to keep your thumb upright. We developed the Steadithumb 2000, which is a monopod that assists thumbeteers with 'walking' across the set."

Not all the thumbs were real. Emmy Award winner John Vulich, of Optic Nerve in Los Angeles, created some eerily lifelike prosthetics that were detailed down to the whorls on the fingerprint. He also designed the mutant two-headed thumb character for the Cantina scene.

Then there were the chins. "Chins were Steve's idea," Merrell said. Oedekerk described the chins as "comedy meets disturbing." Gabba the Butt is Oedekerk's face upside down, chin on top, cut off at the nose on the bottom. "We used prosthetic make-up from Optic Nerve to hide the rest of the face," Merrell said.

The eyes are composited onto the chin and the final effect is downright scary, because the chin (the top of the head) is in constant motion. While acting out his lines, Oedekerk had to remember...that a smile is just a frown upside down.

Hands down, the zaniest prop was the menacing torture device to which Black Helmet Man defiantly threatens the brave Princess Bunhead. The handiwork of Art Director Jorg Dubin and his crew, it is a thumb's worst nightmare - a life sized nail clipper, a corkscrew, and various sharp manicuring tools - a contraption that would cause any cuticle to quiver.



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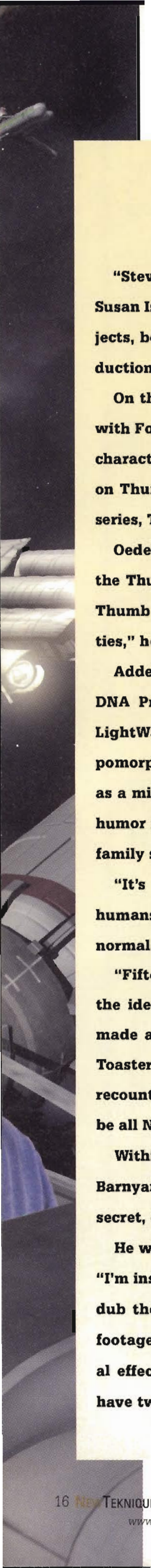


"The Land of New and Different"

"Steve is sort of a gattling gun of strange and funny ideas," Susan Ishida said. Indeed, Oedekerk has a rapid-fire list of projects, both animated and live action, in various stages of production or development.

On the day Thumb Wars was delivered, he agreed to a deal with Fox that involved producing a virtual Thumb Universe of characters and programs. "We are becoming partners with Fox on Thumbs," Oedekerk said. "We will be producing a Thumb series, Thumb fairy tales, and four more Thumb specials."

Oedekerk has had his sights set on The Good, the Bad, and the Thumb. Also, he's toyed with the idea of It's a Wonderful Thumb Christmas special. "We have a long list of possibilities," he said.

Added to that, O Entertainment, assisted by John Davis and DNA Productions, recently delivered to Fox an all CGI, all LightWave demo called The Barnyard, a series about anthropomorphic farm animals. The daffy cartoon - being considered as a mid season replacement at Fox - contains "adult skewed humor for primetime," Oedekerk said, "but we want it to be a family show.

"It's a funny program about how animals behave when humans aren't around. We made the characters just short of normal. Fox totally loved what we showed them.

"Fifteen years ago, back when I was doing stand-up, I got the idea for the show. Then later, when I saw LightWave, I made a mental note about it. Now, I've seen the new Video Toaster NT at NAB and there's a glimmer of hope," Oedekerk recounted. "The Barnyard could be the first show that would be all NewTek. I'm really excited about it."

Within the same two week period as Thumb Wars and The Barnyard, Oedekerk also made a presentation for a wild, top secret, cell animated feature at Fox.

He was also ironing out a deal for the Dubbed Action Movie. "I'm inserting myself into an old Asian martial arts film. I'll redub the dialogue and add fifteen to twenty minutes of new footage. Of course, I'll use LightWave to create a lot of the visual effects," he said. "I'm still trying to pick the right film. I have twenty more coming in next week to look at."

Oedekerk and Davis have also signed a deal with the Nickelodeon Network for their LightWave cartoon, Jimmy Neutron. Nickelodeon is so excited about the concept that they have ordered thirteen episodes and a full length feature film.

"While John is writing the script in the next six months, DNA will be building all the characters," Oedekerk said.

What is almost lost in all this activity is that Oedekerk is one of the most sought after writers in Hollywood. He has written and directed Ace Ventura: When Nature Calls and Nothing to Lose; along with writing the megahits, The Nutty Professor (with Eddie Murphy) and Patch Adams (with Robin Williams).

These successes have allowed him to develop O Entertainment. But, for a man who has an Avid editing suite in his clubhouse, he "still scours the internet for $50 LightWave plug-ins. I try not to focus on money," he said. "If everything went away tomorrow, I could still be working.

"Everybody in the industry is waiting for the green light. *You* need to green light *your own movie*," he admonished. Oedekerk speaks from experience. When he was doing stand-up, "I decided to make at least one movie every year no matter how much money I had to make it."

His first movie, Smart Alecks, he financed himself for $35,000. "I was shooting with short ends. I had one take of every shot, and I decided how long the shot would be depending on how much film was in the camera," he described. The film was stolen and never recovered. The script for Nothing to Lose was inspired by the aftermath of that experience.

For those just beginning, he advised, "You have a gigantic advantage now because a big portion of the industry has a bias against the inexpensive. They would rather use a $160,000 editor than a $3000 Video Toaster NT. Jump on the reality train. You can put out broadcast quality material with the cost effective stuff."

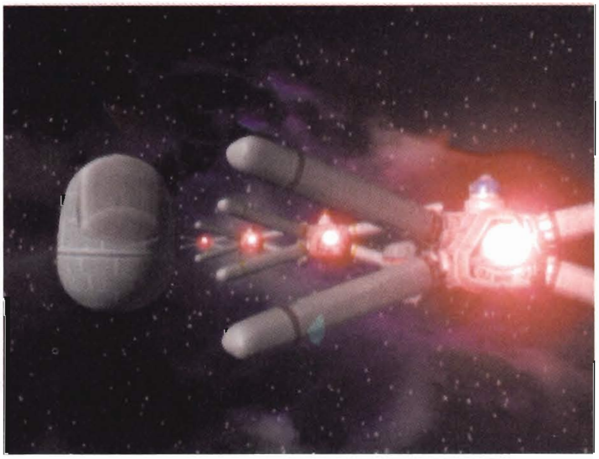
"Just shoot it, make it, do it," he said. "A magical thing happens when you start doing it."

As for the future "from the land of new and different," the confessed "functional workaholic" has two words: theme park.

Once the principal photography was completed, the faces then had to be composited onto the thumbs. "We used a combination of After Effects, Digital Fusion, Commotion, LightWave, and proprietary software for blending the faces into the thumbs," Merrell said.

Merrell had to find a crew of twenty compositors and train them in this new technique. They even developed a manual, "How to Paint a Face on a Thumb". Merrell found that artists with experience picked up the procedure in a couple of days. Others needed about five.

"With this technique, we can use a single actor for a number of thumbs by disguising his face," Merrell said. "We had twenty-two thumbs and only six actors to fill all the faces."



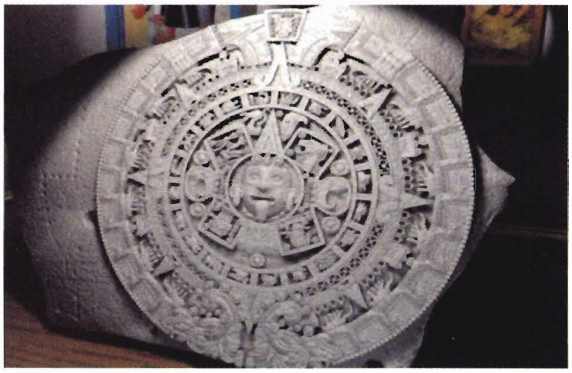
Shots were being shuttled back and forth between artists and editors through two networks that Brian Thomas, the Director of Technology, set up over three sleepless nights. "There was a large amount of data management. Every single shot was an effects shot," Merrell explained. "On top of the regular face compositing, we had the thumb sabers. In all, we had to finish nearly 400 shots in four weeks. From a cheesy Mr. Bill concept, the program pretty much exploded into a high tech Muppet show."

"It was a great project to work on," Merrell concluded. "We never knew what was going to be on the screen next. We would do test renders and laugh for twenty minutes afterwards."

If you missed the TV airing of Thumb Wars, you will be able to buy the video release in time for Christmas. "We cut out a lot of footage for the TV show," Merrell said. "We have eight minutes that we are adding to the home video version," Oedekerk added. Also, after Thumb Wars wrapped, the crew picked up where they left off on Thumbtanic. The plan is to package the two thumbstravaganzas as a double digit feature. *To that, two enthusiastic thumbs up.*

Renders

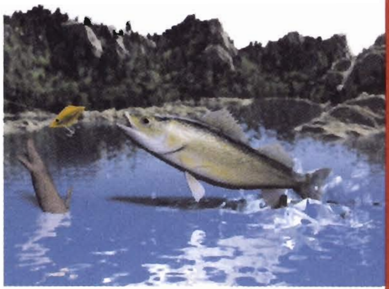
ARTWORK CONTRIBUTED BY OUR READERS



Nick Boughen – "Aztec Sun Stone"

Software: LightWave 5.6

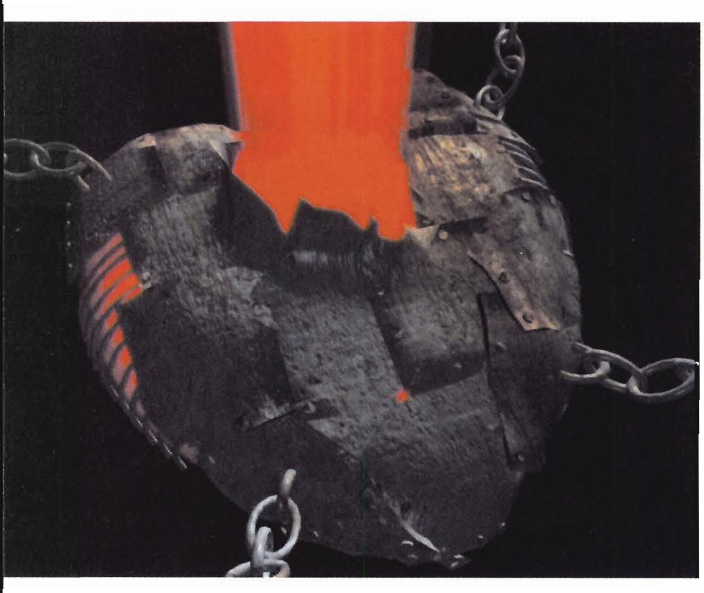
Description: This is a copy of a real artifact - the Aztec Sun Stone found in Mexico City. It was modeled in about two days using LightWave 5.6. The bump map was created using Photoshop 4 and Painter 4.



Bobby Ware – "The Old Fishing Hole"

Software: Inspire 3D, Photoshop 4.0, World Construction Set 3.

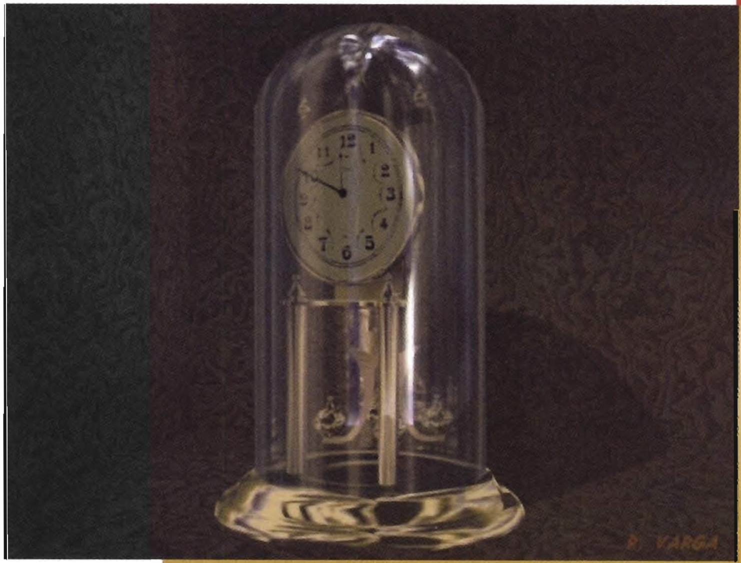
Description: This fish is so hungry he can't even wait for the lure to hit the water. The trick was blending the 3D background image into the box I used for the water.



Matt Thelin – "Plated Heart"

Software: LightWave 3D 5.5

Description: My latest rendering that I put together over a course of a few days, of a heart covered in steel opening up.



Bob Varga - "The Clock"

Software: LightWave 3D

Description: It is a frame from a six second animation where the hanging balls rotate back and forth.

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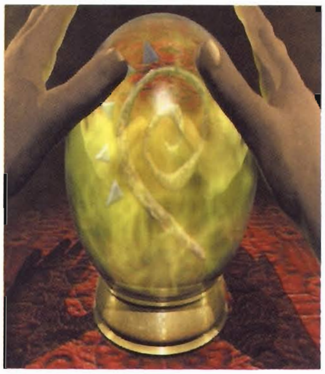
Tutorial

A STEP-BY-STEP GUIDE TO CREATING MORE PROFESSIONAL PRODUCTIONS

BY
DAVE JERRARD



A Gas With Glass

Seeing Through the Mysteries of Transparency

Transparent substances are all around us, though we very rarely pay much attention to them. That is, until it's time to realistically model one in LightWave 3D; at which time, the subtle nuances that make these materials behave the way they do suddenly hit most 3D artists like a feather...cushioning a 25 pound sledgehammer. Let's see if we can soften that blow.

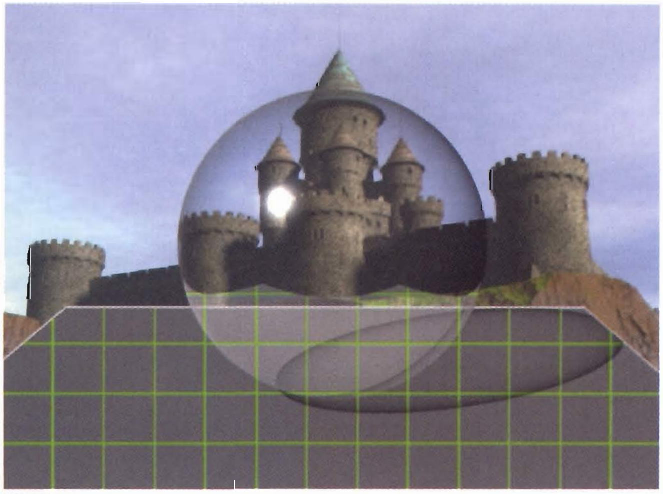


Figure 1a: A transparent, non-refractive sphere in front of a background image. Below the sphere is a flat plane that is front projection mapped with a green grid. Finally, the plane has polygon edges applied to create the white outline.

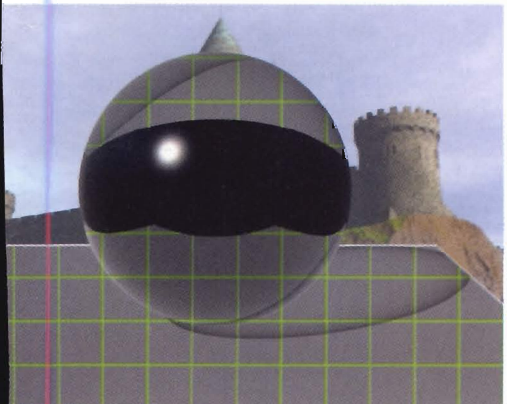


Figure 1b: The same scene, this time with refraction. Note the presence of solid black in the sphere where the background image would have been. Also note how the grid texture is not distorted through the glass, while the edge of the plane is. The white outline of the plane is also not visible through the glass.

The first thing we need to do is better understand how transparency works, both in the real world, and in LightWave. In the real world, every transparent substance, be it as hard as diamond or as thin as air, bends the light that travels through it. This is called refraction, and every transparent material refracts light to some extent. This is what makes a stick partly inserted in water appear broken, what makes a diamond sparkle, why lenses help us see, and why the sun appears to flatten out on the horizon at sunset. In LightWave however, refraction is optional. We can create transparent surfaces that do not refract, unless we specifically want a surface to do that. Since refraction causes a longer rendering time, it is commonly ignored in order to speed the process up, applying it only to surfaces that will be seen close enough to warrant its use.

LightWave handles refractive and non-refractive surfaces differently when rendering. By now, we're all used to seeing how LightWave renders the closest polygons to the camera FIRST, and progressively renders each further polygon, off into the distance. Non-refractive, transparent surfaces, however, are rendered AFTER all opaque (non-transparent) polygons - in the reverse order, starting in the distance and working forward. This is a faster way to render, since all that needs to be done is to overlay the details of each closer (transparent) poly-

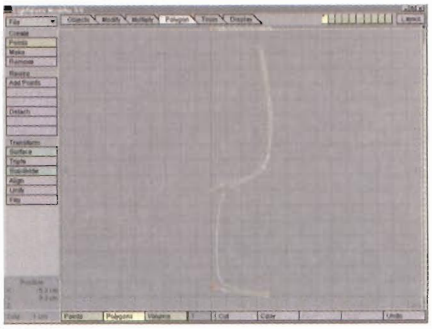


Figure 2a: A spline curve creates a simple profile for a wineglass.

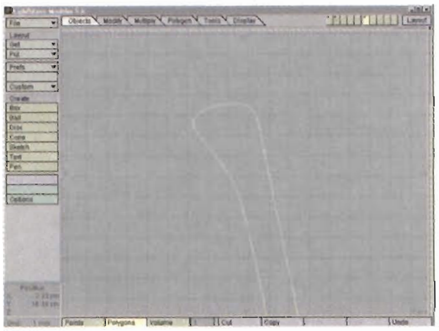


Figure 2b: A close-up of the lip of the glass, showing a slightly rounded bead.

gon over the more distant image data that has already been rendered. Therefore, it is only necessary to filter the image in each area covered by a transparent polygon, resulting in a quicker transparent surface impression.

Refractive surfaces, when the Trace Refraction option in the Render Panel (Camera Panel for LW <= 5.0) is activated, revert back to the rendering order that LightWave uses for opaque polygons—rendering these in the same front to back order. In fact, you might find it useful to think of refraction as a complex surface shader that colors the surface to look like it is transparent, rather than as a transparency setting. Refractive surfaces don't actually filter any previously rendered image information (since there won't be any there, yet, because of the rendering order), but derive their detail from the actual 3D scene data. There is a big difference between the two kinds of transparent surfaces.

Non-refractive polygons, since they only modify previously rendered image data, work with virtually anything in a scene, including background images, particles, polylines (2-point polygons), wireframes, cell-look edges, and front projection images (Figure 1a). Ray-traced refraction on the other hand is more limited. Particles, polylines, wireframes and cell-look edges, which have no thickness, cannot be seen through a refractive surface (or in reflections and shadows). If you're after a realistic refractive canopy on your space fighter, keep in mind that your particle star-field won't be visible through it! The same is true for background images, which will simply be replaced by the current backdrop colors in refractive surfaces.

Front Projection maps behave a little differently. These images are always pixel registered to the frame, which is good for simple compositing, but the registration also carries over to refraction rendering. Anywhere the FP-mapped surface would appear in a refractive surface, the original, unmodified image data will be used; rather than what would normally be visible on that area of the mapped surface. Therefore, the physical geometry of the mapped polygons will be refracted, but not the image that is mapped onto them (Figure 1b).

Aside from these peculiarities, refraction is pretty much needed if you want to create photo-realistic imagery. This isn't to say that non-refractive surfaces can't be used as well though. In fact, non-refracting surfaces are essential for most special effects, such as explosions, fire, clouds, lasers, nebulae, etc. If you're planning an image that would require effects like these, then you'll need to use non-refracting surfaces. However, there is a trick to using them together, which we'll get to later. For now, we'll take care of the most common problem with refractive surfaces.

When light passes from one transparent medium to another, we need to tell it the Refractive Index that it's entering. This is where most people get confused, so we'll start by building a simple wineglass to help explain.

PART 1: Wineglass

1. Open Modeler and zoom in until your grid size is 1 centimeter, then use the sketch tool to create a quick profile for a wineglass (Figure 2a). Press the 'Enter' key to turn this into a spline, then use the drag tool to fine-tune the shape. Make sure the X-value of the two end points is zero since we'll be lathing this shape. If they're not, then you will most likely end up with a hole down the center of the glass.
Note: You may need to delete a few points along the length of the spline, since even with the Curve Division set to Coarse in the Options panel, Modeler tends to create more points than are necessary.
For an added touch of realism, you might want to create a slight bead along the rim of the glass, as well as the base (Figure 2b). It might seem like a small detail, but it does make the glass look that much more realistic when lighting is added later.

2. When you have a profile you like, select the Mirror tool and place its plane at zero meters on the X-axis, then press 'Enter'. This will give you a better idea of how the glass will look when it's finished. If you don't like the look, then simply Undo this, and adjust the spline a bit more, then mirror again.

   This not only gives us a quick preview, but also sets us up for a simple way to avoid any unwanted sharp angles at the center, when we lathe this. If you zoom in on one of the end points of the spline, you'll see that where the original and the mirrored spline meet, they do not form a smooth curve, but rather, a corner.

3. Make sure that nothing is selected, then merge points. Two points should be removed by doing that. Next, select both curves, then select the Tools menu and click 'Smooth' at the bottom of the menu.

Continued on page 37

The Gateway

First Words

I can't express how important it is to me that companies have good customer support. I've communicated with a lot of companies and have received very different responses from each.

I often need to rely on manufacturers to provide technical information about a product. Early on, I had spent a lot of money on Yamaha music products; but became very frustrated trying to get any support from them. I had also been buying Roland gear and always had terrific response from their support staff. The president of Roland Canada even called me a couple times to respond directly to some of my written concerns and thank-you letters. I decided to call the president of Yamaha Canada, which resulted in this conversation with his secretary: "I'd like to speak with the president, please." - "What company are you with, sir?" - "No company" - "I'm sorry sir, we don't speak to people." - click. Well, as you can imagine, I wasn't impressed and I acted accordingly. I sold almost all of my Yamaha music products and replaced them with similar Roland devices. To this day, I've never bought another Yamaha product.

Several months ago, I purchased an Epson Stylus Color 1520 printer and Wolf Faust's Studio printing system for use with my Amiga. I was having problems with the color output on the printer and I called Epson. They told me the problem was very likely the driver. I continued testing and consulting with Wolf, who assured me it wasn't the driver. Isn't that always the case - each company blames the other? I called Epson again, who told me to return the printer. Within an hour, a courier company was at my door to pick up my printer at Epson's expense. The next business day, the repaired printer was back. I set it up and printed some images. I was stunned by the incredible quality. I called Epson to thank them for such a quick response, and explained that it was unfortunate I had wasted so much ink and paper trying to solve a problem that was apparently a hardware defect. They apologized. The next morning, I received a package from Epson, with four color ink cartridges and a package of photo quality paper, easily worth $200. WOW! I was even more impressed!

Perhaps you may have had opposite experiences with these companies. It often depends on the support staff's willingness to help. Some care more than others. I encourage anyone who has a problem with customer support at any company, to make your complaints heard. If you are persistent, you can often get the results you are hoping for. If you don't, demand to speak to a supervisor or the head of the company. If that doesn't work, take your business to someone who cares.

Last Words: Service, more than a smile.

Dhomas Trenn

Dhomas Trenn, Beyond Impressed

"The Gateway Online"

For more articles, visit The Gateway Online at:
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Cecilia continues to share her ImageFX processing wisdom. This time, she's takes you on an excursion to the Culloden battlefield in Scotland, to explore the world of Color Curves. She's got knowledge from the nuns, tips for "The Exorcist" and "X-Files" fans, and more.

Silcon Alchemy: PowerPC and reality. What's all the craze about? How good is it really? Is it for you? Dave Haynie answers those questions and more.

Bob Ketchum has some great ideas for making money. This time he tackles video slide shows and copyright issues.

In addition, you'll find columns by Kevin Hanley, Kermit Woodall, and reviews of Candy Factory Pro, Cine.Man Toast 1 & 2, and downloads.

G3/G4 PPC Coming to the Amiga

There's been a recent surge in PowerPC development by hardware manufacturers - with new G3/G4 PPC processors that offer blazing speeds of 233-450MHz.

Met@box AG (formerly PIOS Computer AG) are developing the AmiJOE for the A1200, A2000, A3000, and A4000. These accelerators will include a 333MHz (A1200) or 400MHz (A2/3/4000) G3 processor, a Universal Serial Bus (USB), PCI-bus compatible expansion connector, memory expansion, real-time clock (A1200), 1MB cache, and FlashROM for easy software upgrade. These are expected to ship in Jul-Sep 1999. A PCI add-on module for the A2/3/4000 version, called MultiJOE, will include Ultra-SCSI, 2D/3D graphics, video-input, digitizing, alpha blending, genlocking, flicker-reduction and AC-97 sound.

The Twister is being co-developed by ACT (Apollo), Haage & Partner and Titan Computers for the Amiga 1200. It will include a 300 - 450mhz processor, two PCI-bus slots, up to 512MB of RAM, 512K cache, and FlashROM with 100% compatible 680x0 CPU emulation. Planned expansions include a 2D/3D graphic board with 8MB RAM and built-in Amiga video pass-through, as well as a UltraWide-SCSI controller offering up to 40MB/sec transfer and DVD support. Expected to be shipping in Oct-Dec 1999.

Escena are developing the Zorro3 BrainStormer which includes 680x0 CPU emulation, 512KB/1MB cache and up to 512MB of RAM. The BrainStormer is also capable of supporting a second G3 processor if/when drivers for handling multi-processors become available. Expected to ship Jun-Jul 1999.

Phase5 continues with development of their CyberStorm series accelerators, offering the next generation CyberStorm G3/G4. Among it's features are an UltraWide-SCSI controller, PCI-bus, 400Mbit/s FireWire interface, two SDRAM DIMM sockets for up to 1GB memory, and FlashROM.

GVP have also announced G3 PPC accelerators for the Amiga, to be released fourth quarter 1999.

Amiga Changes Continue

The merging of Amiga Inc. and Amiga International has resulted in a new company that is simply called Amiga. The executive team is currently made up of: Jim Collas, President; Dr. Allan Havemose, Vice President of Engineering; Dr. Richard LeFaivre, Chief Technology Officer; Jeff Schindler, Vice President Strategy & Product Management; Petro Tyschtschenko Vice President, Distributor and Reseller Sales; Jim Von Holle, Vice President of Marketing and OEM Sales; Richard Lipes, Director of S/W Engineering (Graphics and A/V). Also expected to be announced soon are a Vice President of Advanced Technology, and Vice President of Finance and Operations. Other engineering staff positions are now being advertised.

Current development programs include: (1) OS 3.5 — to be released in August 1999. (2) AmigaSoft Operating Environment (OE) — including operating system, user interface, and revolutionary software structures. Beta and final versions are expected to be released late in 1999. (3) AmigaSoft development system — to be released to coincide with the beta release of the AmigaSoft OE. (4) Next generation hardware architecture (5) Initial next generation computer — used to launch the next generation systems architecture and operating environment. Target release date is late 1999.

New reseller, distributor, magazine and user group support programs are being developed to help the Amiga community.

Amigas at NASA

For over a decade, more than 20 Amiga computers have been in use at Cape Canaveral's Hanger AE on a daily basis. The Amiga is used because of its stable and compact operating system and it is relied upon for scientific accuracy and system critical applications on every spacecraft launch. The Amiga is extensively used in areas of environmental control, operational support, data routing for remote monitoring/processing centers, and custom hardware/software development. NASA also uses a Video Toaster system in their television center for titling, data overlay and visual effects.

AmiWest '99

The Amiga West Coast Convention, AmiWest '99, is set for July 23-25, 1999 at the Holiday Inn, Sacramento Northeast, 5321 Date Avenue, Sacramento, California, USA. For more information visit the AmiWest website at www.sacc.org/amiwest/

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Circle #207

Toast Master

Seeking to Obscure

By Bohuš Blahut

This issue we focus on techniques used very commonly in documentaries, news programs and talk shows to prevent the audience from seeing a particular part of the view. Depending on the nature of the show, you may need to hide a person's identity, obscure license plates, hide objectionable t-shirt messages, cover up nudity, or something similar. So, here are a few techniques to achieve this effect, both in the field and in post-production.

OBSCURITY IN THE FIELD

First, a few techniques that don't require a Video Toaster.

1. The Disguise

The most basic way to hide a person's identity, is for the subject to wear a disguise (wig, dark glasses, fake mustache, etc.). The advantage here is that you will be able to show facial expressions and other gestures - which makes for more interesting video.

2. Careful Camera Work

There's no rule that says that you have to have the camera focused solely on the subject's face. A more stylistic approach, is to shoot close-ups of gestures, and various cut-aways. You could also dissolve to other video that illustrates the speaker's dialogue and advances the overall story.

3. Silhouette Lighting

Another common technique is to light the subject in silhouette. This is easy to achieve by lighting only the background of the set, while making sure that none of the light spills onto the subject's face. This technique is subtle, classy, and will allow the subject to gesture freely. Make sure that he doesn't dip into the light! A nice added touch is to take a smaller light and aim it so that it only illuminates the subject's shirt or hands. Now let's put Toaster into action.

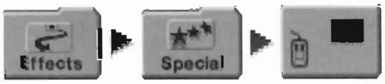
4. Two Cameras

This technique is the most sophisticated of the on-set techniques, and requires that your Toaster be at the shooting location.

1. You'll need two cameras connected to your Toaster. Don't forget that they'll both have to be synchronized to each other and to the Toaster.

2. Position the cameras as close together as possible, so that when you switch between one camera and the other, the images are almost indistinguishable.

3. Select one camera and focus it on the subject. On the other camera, de-focus the image. When you switch between the two Toaster inputs, you should have one clear and one very blurry image.



4. While in the Project/Files view, locate the "positionable wipe out" effect in the "Effects/Special" directory, and drag it into the Project window.

5. Go to the Project/Switcher view and assign the focused image to Main and the blurry one to Preview. In the Project window, select the "positionable wipe out" crouton.

6. Now, pull down on the T-bar and a window with your blurry image will appear and begin to enlarge. Adjust the size of this window to suit the area you wish to obscure (head size, obscene t-shirt size). If you need to make it smaller, just push up on the T-bar.

7. When you have the size of the window just right, release the T-bar. Then as you move the mouse, the window can be moved into position.

Voila! Now you can begin recording to tape. If the subject needs to move around, you can easily follow them by moving the mouse. Just make sure that your subject doesn't get ahead of you.

OBSCURE IT IN POST

What if you have already recorded your material, and you need to block out a license plate or face in the crowd? There are a number of ways to fix this problem, too!

1. Black Box

If the object isn't moving, you could simply create a box to cover it in ToasterCG. Here's how:

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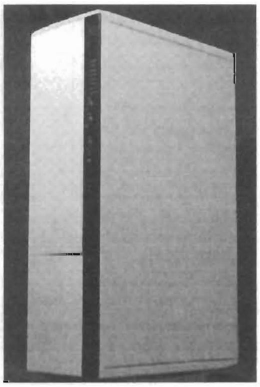

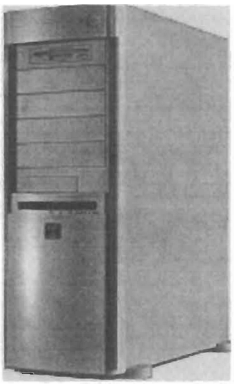

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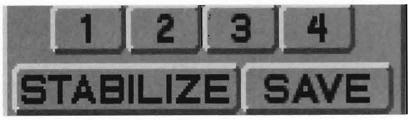


1. Grab a Framestore from your video and save it.

2. Enter ToasterCG and set the Page Type to Framestore.

▶ ▶ PAINT ▶

3. In the Palette panel, set the Background Type to ToasterPaint and Load your Framestore image.

Continue ▶

4. Click Continue, and Render Page (F9). Now you have a placement guide to assist you with the next step.

▶ T ▶ T

5. From the Font Menu pop-up, select Box to create a sizeable box. You'll probably want to change its color to Solid dark grey (R:1 G:1 B:1); although any color, other than black, will work. Make sure the Alpha Channel is set to zero transparency (A:255).

S B

6. Set the Shadow Type and Outline Type to None.

Key

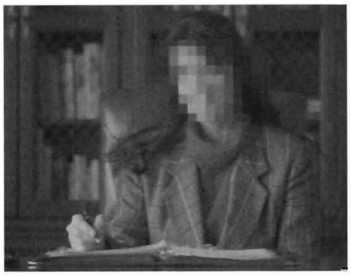
7. Position and size the box so that it covers the appropriate area. Use Render Page as necessary to get it just right. You could also have some fun here by adding text, "X-RATED", over the box. When you finish, change the Page Type to Key. This will eliminate the temporary guide image that you had loaded in the background.

Save Page

8. Save the page and return to the Switcher. Now, when you need to block out that area from the video, just load up the CG page.

2. Follow the Leader

If the subject to be obscured is moving, and you want to track it with the mouse, you can use a variation of last issue's tutorial (See: Feb/Mar 99). Instead of using a fancy pointer, you can just create a dark box in ToasterPaint. Make it the approximate size that you need to cover whatever area of your video that needs it.



3. Mosaic Window

While the black box method was the standard on television for a long time, the new way is to have a floating window that applies a mosaic effect to whatever is behind it. The Toaster isn't really set up to do this; but, we can create something similar.

1. Grab a Framestore from the scene you want to obscure and save it.

2. In ImageFX, or similar, apply a distortion effect (Mosaic works nicely) to the entire frame and save it as a Framestore.

3. Load that image into one of your DV buffers and assign it to Preview.

4. Using the "positionable wipe out" effect, as described previously, stretch out a window to a size appropriate to your project.

There you have it. A mosaic window that you can move all around the picture. It's not perfect; but, it will do the job in some circumstances.

4. Distortion Box

The following way is my preferred method, and the one most like what network television uses.

You'll need a video device that can perform some kind of distortion effect. I've seen inexpensive consumer boxes that have built-in effects, such as Mosaic. Personally, I use an old Amiga device called LIVE!. If you have access to a second Toaster, you could perform outlandish ChromaFX, or use partially completed digital wipes, such as: "expand overshoot in" and "Zoom In" - both are in the digital effects directory.

1. Split the video signal coming out of your video player, and run one output into your Toaster. Connect the other output to you distortion box and connect it's output to another Toaster input. This will give you video on two inputs of your Toaster. One will be clear video, the other will have the added distortion.

2. Assign the clear input to Main, and the distorted input to Preview.

3. Using the "positionable wipe out" effect, position and size a distortion window as necessary.

Nice eh! Just like watching television!

5. Video the Video

I've seen another highly stylized technique on MTV and Fox Sports broadcasts. The technique couldn't be easier—just play your video on to a video monitor, and shoot off of that monitor. You'll have to make sure to turn the brightness and the volume of the monitor down. I usually do these shots hand-held, and move the camera around a bit. The more grain, the better. Also, make sure to record captivating close-ups: hands, gestures, and other important story-telling elements. Obviously, this style won't fit every situation; but, it's a quick way to embrace today's "grungy video" trend.

So there you have it—several approaches in both production and post-production on how to obscure portions of the screen. I've included some discussion about disguising voices in a continuation of this article on-line.

I hope that you've enjoyed our little trip down obscurity lane. If there are any other topics you would like to see this column address, please email me.

Bohus Blahut is the director of The Vantage Point and creator of the Catalyzer tutorial video series.

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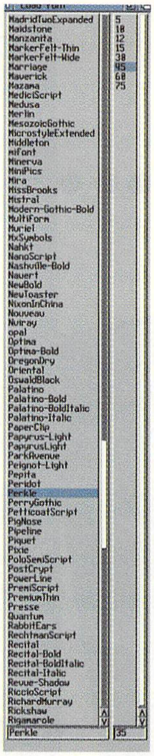

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MadridTwoExpanded      5
Maidstone              18
Manzanita              12
MarkerFelt-Thin        15
MarkerFelt-Wide        38
Marriage               45
Maverick               60
Mazama                 75
MediciScript
Medusa
Merlin
MesozoicGothic
MicrostyleExtended
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mifont
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Recital
Recital-Bold
Recital-BoldItalic
Recital-Italic
Revue-Shadow
RiccioScript
RichardMurray
Rickshaw
Rigamarole
Perkle                 35
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Fonts, Fonts, Fonts

A whole world of font fun ready and waiting for you

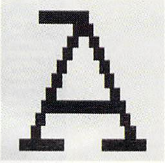
By Dhomas Trenn

There are literally thousands of fonts freely available on the internet. Unfortunately, the Amiga is a bit behind in it's support for standard formats such as TrueType (.TTF) and PostScript Type1 (.PFB), which is what you are most likely to find.

Some applications, such as the Video Toaster and Pagestream, include direct support for Type1 fonts; but other important software, like ImageFX, do not. And nothing on the Amiga, that I'm aware of, can use TrueType fonts.

Don't be discouraged. What if you could use TrueType fonts with ToasterCG? What if you could use these standard font formats in almost any Amiga program? What if all those Toaster fonts you have collected, could be used for something else? Or maybe you're just bored of two-dimensional, one color fonts? Read on...You are about to discover that there is a whole world of font fun ready and waiting for you.

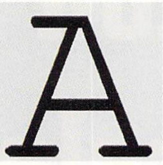
Kinds of Fonts



Bitmap character

There are two main kinds of computer fonts, bitmap and outline.

In a bitmap font, each character is represented as a rectangular grid of pixels that are either on or off. Basically, the font is just a series of images that represent the different characters at a single size. To display text, each character's image is directly copied to the output device (monitor, printer). This process is very fast; but, you can not easily change the size or shape of a character, without a significant loss of quality. Bitmap fonts are the main Amiga font format.



Outline character

Characters in an outline font are represented mathematically, as a series of lines and curves. This means that text has to be rendered (rasterized) before it can be displayed - and is therefore, much slower than when using bitmap fonts. However, one benefit is that character size and shape can be changed easily - without any reduction in quality. Examples of outline fonts include TrueType, PostScript Type1, and Compugraphic. The Amiga does include basic support for Compugraphic outline fonts; but, these are not easy to find.

Where to Get More Fonts

The best way to find TrueType fonts is to go to an internet search engine and do a search for "free fonts". I recommend www.altavista.com, because it has the most comprehensive search database - or www.excite.com is also a good choice. Beware, addiction can quickly set in.

If Type1 fonts are what you are after, you'll have to search a little harder - they are not as popular as they once were. Aminet has hundreds of them in the text/pfont directory.

Most websites indicate whether their fonts are in TrueType or Type1 format; but, if you're not sure, download one and unarchive it to see.

Most likely, all the other archives at that site will be in the same format. Don't be mislead by websites that only mention MAC or Windows. By now, you should realize that this doesn't mean the Amiga can't play, too.

What You Need

Most fonts, not found on Aminet, will be stored in ZIP archive format. So, you'll need an UnZIP utility.

To use Type1 fonts, you need a .PFB file and it's corresponding .AFM file, which should be included in each font's archive. To use TrueType fonts, you only need a .TTF file. Additional files may also be included; but, they are not required and can therefore be deleted.

Adding Outline Font Support

So, now that you have lots of new fonts, what can you do with them? Although you can't directly use Type1 or TrueType fonts with most Amiga applications, there are a couple easy ways around that.

The freeware type1.library, authored by Amish Dave, is a very elegant solution to the lack of Type1 support. To install it, you simply copy the library into LIBS:. MUI must also be installed, if you don't already have it. Then, start T1Manager, set the Font Drawer, and click the Install gadget to select the font(s) you want to use. Only select .PFB files. To select more than one font, shift-click on the additional font names - or use the Match.. gadget with "#?.PFB", to select all the fonts in that directory. You can also use T1Manager to view your installed fonts.

Richard Griffith's ttf.library, also freeware, works in a very similar manner, providing support for TrueType fonts with Amiga applications, including ToasterCG. Installation is identical to that of the type1.library, with the exception that MUI is not required. The TTFManager program is also similarly easy to use. Select a Font Source and Destination and then Install. For more control, an options panel is available to set various font settings. The archive also includes a nice stand-alone TrueType font viewer and some other related utilities.

With either, or both, of these font systems installed, most Amiga applications that support the Amiga's native bitmap fonts, will also be able to use these formats. Although it is possible, I don't recommend that you use TrueType or Type1 fonts for workbench or program interfaces. They are slower, and the stability of these systems, in constant use, is not known. But, to get access to these fonts in programs, such as ImageFX and ToasterCG, this is a great way to go - and highly recommenended.

Converting Fonts

If an Amiga application, that uses bitmap fonts, does not work with the ttf/type1.library systems, there is a program, included in the ttf.library archive, called Bitline that can help. With the appropriate support library installed, Bitline can create standard Amiga bitmap fonts, in specific sizes, from TrueType or Type1 fonts. It's as simple as telling it the font name and size to be generated.

Applications that do not support bitmap fonts will not be able to take advantage of these systems. ToasterPaint, for example, will only work with Type1 fonts. In this case, you'll need a way to convert other outline formats to Type1.

The only program, that I know of, that converts between various formats of outline fonts, is TypeSmith. The program is mainly intended for designing high quality outline fonts - a job that requires more effort than most readers will have patience for. But, TypeSmith can also import and export various font formats, among which are TrueType and Type1. This is a commercial program, but I have seen it available for as low as $20. Even if you just use it for font conversion, it's well worth the price.

Faster Font Selection

One of the things you'll discover is that the more fonts you have, the longer it will take for the Amiga font requesters to initialize. But, there's a solution to that, too.

FontCache, from author Thomas Richter, is a freeware patch for the diskfont.library that provides very quick font requester initialization. It works by building a database of available fonts and getting the font requester to read that database, instead of rescanning the FONTS: directory every time. This makes opening a font requester is much faster.

With almost 500 fonts installed on my system, the unpatched font requester takes about a 1m:23s to display. With FontCache installed, the same process takes only 4 seconds. If you add or remove fonts, FontCache is smart enough to update it's database automatically.

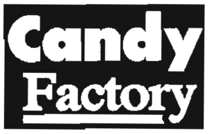
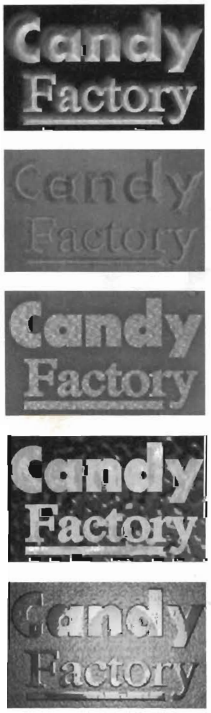


Figure 1



Note that non-standard font requesters, such as used in ToasterCG, will not benefit from this patch.

Candy Factory

Okay, so you've got hundreds of fonts now, and the excitement has warn off. What you need next, is something to really spice things up.

If you have an AGA Amiga or a graphics card, Candy Factory is a must-have freeware utility. Candy Factory, by Milan Pollé, will take any "mask" (Figure 1) as an input and allow you to add shading, specular highlights, ambient light, variable bevels, normal and diffused glows, soft shadows, noise bumping, metallic effects and more. The masks it uses are just black & white IFF format images, that can easily be created using any paint program - with your choice of fonts, clip-art or other graphics.

The effects that Candy Factory produces could probably be created in any image processing program; but, it would take you a lot longer to do it that way. Candy Factory allows you to edit many of it's options with very fast visual feedback, including material settings, light source and reflection position, shadow position and intensity, glow color and intensity. Other effects such as shadow, glow and beveled edge generation, require a short rendering time - dependent on the speed of your computer. PPC users will get up to ten times increase in rendering speed, or even real-time control of all parameters.

Although the program seems to be intended for making fancy text, which it is very good at, there's no reason why you have to use it just for that purpose. You can just as easily turn silhouettes and clip-art into "eye candy" (Figure 2).

Figure 2

With careful parameter modification and repeated saving of individual frames, you could also make some very interesting animations. One such example would be to have a still title with a moving light source, great for video project title screens.

The freeware version of Candy Factory is fully functional; but, a Pro version is also available with more extensive features (see on-line review).

Font Machine

Font Machine, from ClassX Development, works a little different; but, the final results can be similar to what you can create with Candy Factory.

Like Candy Factory, this program is not a font designer; but, more of a font enhancer instead. There are some important differences between the two though. Rather than manipulating a mask image, you begin by selecting any bitmap or Compugraphic font (or TrueType and Type1, as described previously). A preview window will appear, displaying several characters from the selected font. You can then apply various effects, including: embossing, beveling, 3D look, shadow casting, anti-aliasing and texture mapping.

When you are done designing, the program will then process every character in your source font, apply the enhancements you have made, and create a new ColourFont at any requested size. You can then use this new font with any ColourFont compatible applications, such as ImageFX and Deluxe Paint.

The advantage to the way this program works, is that once you have created a font, you then have immediate access to all characters with the new look you have designed. It's a simple matter to compose any textual display quickly. You don't have to create a new mask, reload previous settings and reprocess as you would with Candy Factory. You just select the font in whatever ColourFont application you use and type the needed text.

You are limited, however, in that you can only manipulate font characters. You can not apply the various effects to non-font graphics, nor to the background.

Font Machine will work with any display mode, though I recommend at least a 640x400, 16 color display. AGA and graphics card users will really benefit from working in 256 colors (the maximum supported by this program). For more details see the on-line review.

Font Organization

If you have a large collection of fonts, it can become difficult to find what you need for any given project. To make the search easier, it's a good idea to create a printed catalog. A catalog is also very handy to have when meeting with a client. The client can search through the catalog, and can help make decisions on styles that they like - it can sometimes make them feel more involved with the creative process.

I most often see alphabetized font catalogs with a single line of text for each font, displayed with a point size that allows numerous fonts to be shown per page. There are a couple problems with this method. Different fonts look best at different sizes, some are not readable at small sizes, while others reveal poor design flaws when they are enlarged. Also, if you add new fonts on a regular basis, it's then necessary to reprint the entire catalog every time you add new fonts, in order to maintain the alphabetization.

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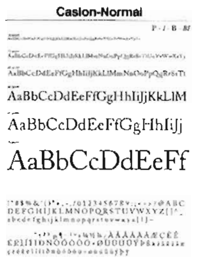
Circle #210

A better way is as shown in Figure 3, with one font per page. The title of the font is at the top. Below and to the right are indicators for the availability of bold and italic versions of that font. Below that, the alphabet is displayed, alternating uppercase and lowercase in the following point sizes: 10, 15, 20, 35, 45 and 75. This is a good range to cover most uses. At the bottom, is a display of all the characters contained in the font, including foreign language characters if available. This method, gives a good overall view of each font and accommodates different needs when searching for an appropriate font.


Caslon-Normal

AaBbCcDdEeFfGgHhIiJjKkLlM

AaBbCcDdEeFfGgHhIiJj

AaBbCcDdEeFf

Figure 3

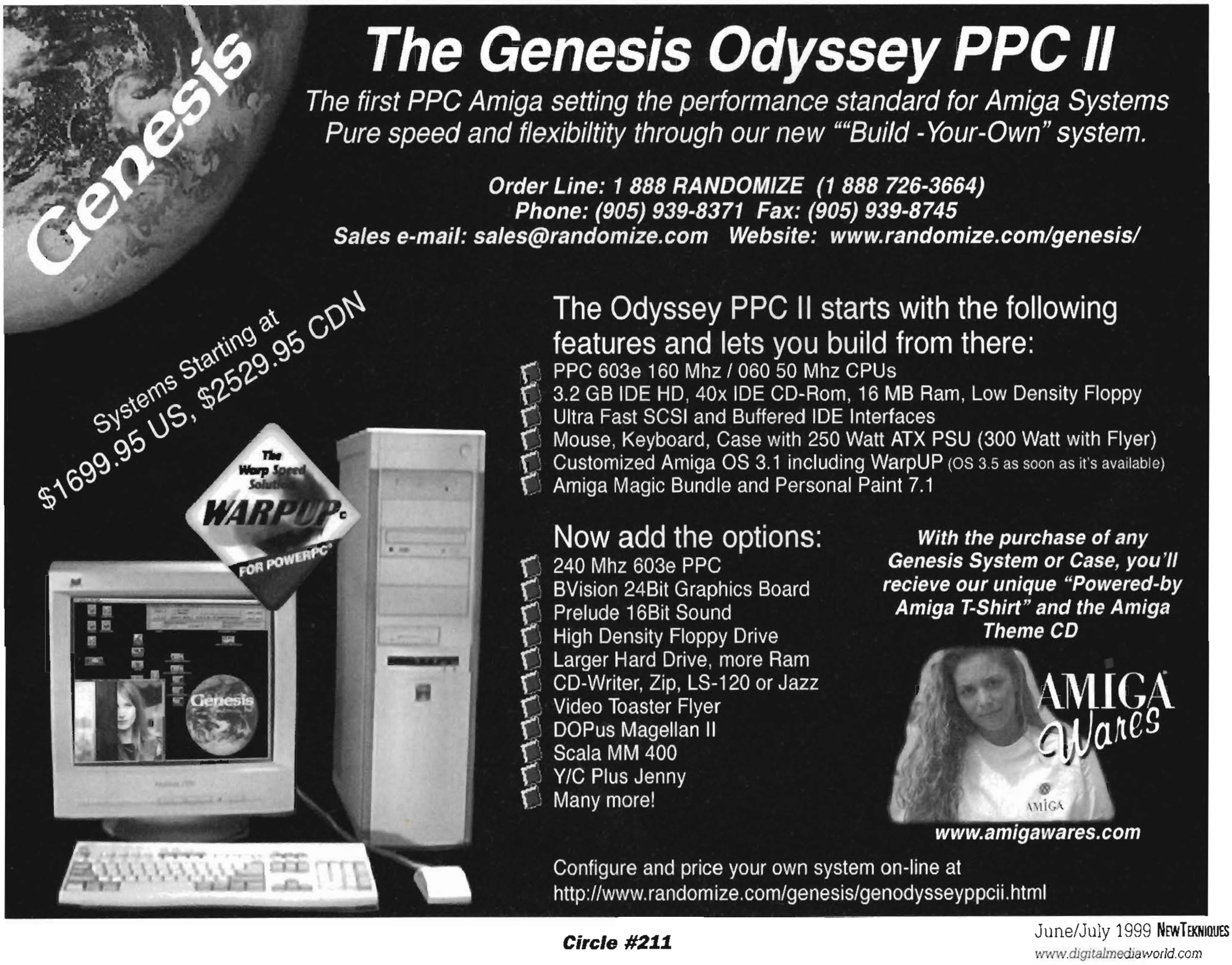
It is also a good idea to organize your fonts, both in your catalog, and on your computer, into categories that best suit your working methods. I use fonts for graphic design, desktop publishing and video titling, so I have categories as follows: Body, Body-2, Body-Graphic, Body-Topic, Caps, Caps-3D, Caps-Graphic, Caps-Topic, Dingbats, NoCaps, Old, Script and Standard.

Body fonts are those that are usable for long reads of text, such as in a novel or magazine article—they also often include bold and italic versions. Caps are fonts that only contain capital letters—many public domain and demo fonts are limited in this manner to encourage you to buy the full versions. Dingbats are collections of symbols and other non-alphanumeric graphics. NoCaps are fonts that contain only lowercase letters. Old includes old-style fonts, such as Gothic forms. Script fonts are continuous-stroke styles, where each letter joins to the next or are calligraphic. Topic fonts are those that suggest a particular topic, such as fonts designed for Halloween—or that contain recognizable graphics, such as explosions, pipes, logs, paper clips, snowcaps, etc. Standard fonts are those commonly included in most printers.

If your main use of fonts is for video applications, you might consider categories such as: Credits-Still, Credits-Scrolling, Events-Conference, Events-Wedding, Interviews, Logos, Titles, etc.

Just the Beginning

There is still a lot more fun that can be had with fonts. This article should, hopefully, have opened up a whole new world of adventure; but, it doesn't have to end with the suggestions made here.



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Circle #211

Flying High

To Leave the Amiga or not to Leave...

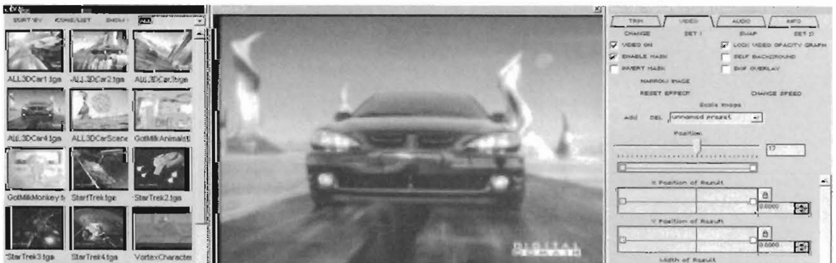
By Joe Tracy

NewTek's announcement of the Video Toaster NT at NAB has spawned a lot of email to my box with the same question, "Should I leave the Flyer for the Video Toaster NT?" It's a great question and one that you know I will be very honest in answering.

The Video Toaster and Video Toaster Flyer currently have two big weaknesses. The first is the Amiga computer, which hasn't been updated in over half a decade. The second is NewTek, which hasn't updated the Video Toaster Flyer in years. In fact, when the final version of the Video Toaster Flyer first came out, it was part of the 4.0 series, which it has never gone beyond. These facts are very disheartening and yet both are being solved in different ways.

First, let's talk about the Amiga. I've been very critical regarding the lack of progress of the Amiga since Gateway took it over. Gateway did practically nothing with one of the greatest technologies ever. But that was before Jim Collas was brought on board to take over as CEO and president of Amiga. Since Collas came on board earlier this year, development of the new Amiga systems and communication with users has increased dramatically. By the end of this year, we should finally see some new revolutionary machines. The Amiga is definitely back and I applaud Jim Collas and his new team for the renewed efforts they are putting into making the Amiga thrive once again.

Now, let's talk about NewTek. The approach NewTek has taken to the Amiga over the past several years is one of great apprehension. That may not be a good user decision, but as a financial decision it may have been necessary due to years of the Amiga being neglected. So NewTek spent four years secretly working on a WindowsNT solution for video producers instead of furthering development with its Video Toaster Flyer on the Amiga. The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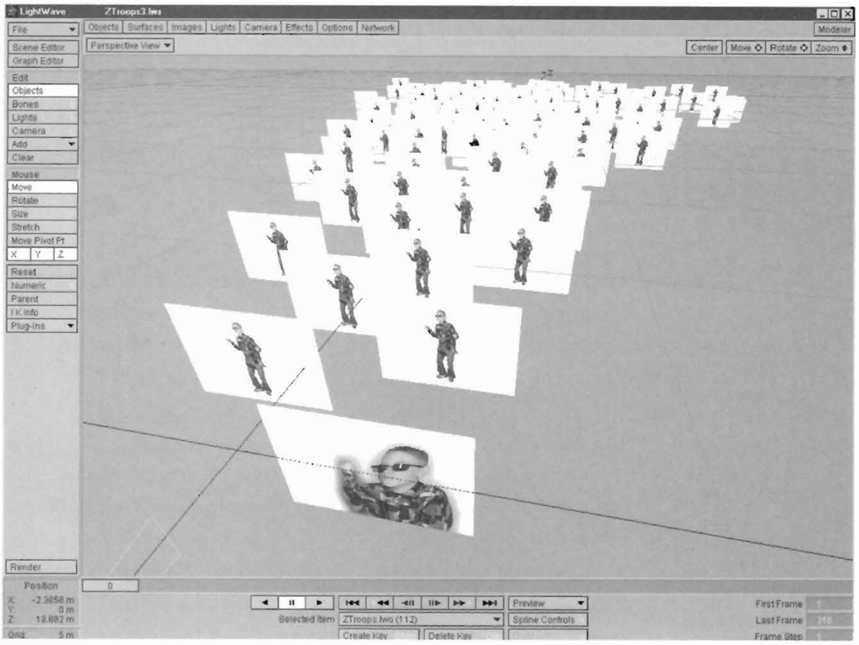
VortexCharacter
VortexCreature
VortexPlane.tga
Double_Wipe
Page Curl
Picture Square

This is NewTek's new Video Toaster NT storyboard interface that was shown at NAB. The only problem is that it won't be available until later this year. Until then, those that purchase the Video Toaster NT must use the Speed RazorVT timeline interface.



results of NewTek's new focus were unveiled at NAB '99. In typical NewTek fashion, the results were very impressive in what NewTek calls the "PC Toaster Revolution." There was, of course, no mention of the Amiga anywhere.

NewTek's PC Toaster revolution consists of a non-linear editor that records and edits video in an uncompressed mode. The editor leverages the power of Aura, Speed Razor, and a special version of LightWave (called LightWaveVT) to help accomplish many tasks, including some that you couldn't do on the Flyer (like blue screen and green screen effects). The thing that most impresses me about this new system is the ability to build custom effects in LightWave 3D that, after being rendered once, can be used as real-time transition effects! Such customizable abilities will easily help your videos stand out from the crowd.

So this brings us back to the original question—is it a good idea to stick with your Video Toaster and Video Toaster Flyer system or to migrate to the Video Toaster NT? My answer may surprise you and I may not get many cheers from NewTek as my advice is to *WAIT*.

Wait? Yes, wait. By the time you read this article, you will be able to purchase the Video Toaster NT (unless NewTek misses its announced June delivery). But what you will get is not the true finished version of the Video Toaster NT. One of the most impressive elements of the Video Toaster NT is the storyboard editor (shown at NAB), but it won't be available until later this year. The 16-input switcher also won't be available until later this year. The same goes for the 16 channel audio switcher. So while you can purchase a system today, you will be very limited in some of your abilities. By waiting until later this year you can get a more stable program (since a bug fix or two most likely will have been released by then). Furthermore, you will have the opportunity to see what the initial reaction is from video producers who take the plunge as soon as the product ships.

For those of you who must be the first on the block to own something new, then I say go for it. But don't expect it to be as easy to use as the Flyer... yet.

Personally, I can't wait to take the new Video Toaster NT for a test drive. The demonstrations at NAB were very impressive. I can only hope that the success of the system will bring forth more timely updates than those we never saw with the Flyer. In some ways I feel "ripped off," but then again the Flyer has brought me many wonderful years. And more times than once great third party products were there to save the day. Imagine if companies like OZware, ProWave, and Dimension Technologies were all part of the official Flyer development team. Hmmmm...

All this talk brings up another interesting scenario. What will the new future of the Amiga hold for video producers like you and I? Since you won't be able to transfer your Video Toaster card to the AmigaNG, you have to wonder who will be the first to take advantage of this new multimedia wonder that seems perfect for video producers. Will it be NewTek, Draco, Casablanca? Is NewTek out of the Amiga market for good? Interesting questions with no direct answers. One thing is clear, though. By the end of this year I will be using the Video Toaster NT, because it seems like the next logical step to take. But until all the components are in place, I will continue to keep the dust off my trusty Flyer and the Amiga 4000 that hosts it.

The New Millennium

At press time, an announcement was received that Nova Design and NewTek were working together to bring a new upgrade to Video Toaster and Video Toaster Flyer owners simply called "Millennium." In short, Millennium appears to be the bringing together of numerous third party programs into one integrated package. Combine this with lots of new support material (fonts, backgrounds, wipes, etc.) and you have an upgrade (albeit not an "official" Toaster/Flyer upgrade) that we have been waiting for years to receive. Also, "a powerful suite of tools is added to the Flyer interface, including compositing tools, rendering tools and audio tools." This new integrated upgrade is due out later this summer, with the price still to be announced. It seems to be just the right package to reenergize all of us video producers and to give us something to play with while mulling over the big decision—"to leave or not to leave."

Joe Tracy is the author of the "Flyer Mastery Guide 2.0" that can be obtained through all dealers that advertise in "The Gateway" section of NewTekniques. Joe Tracy is also one of three authors of "LightWave 3D Applied."

Conversions

By Dhomas Trenn

Most programs have a custom file format, whether it be for word processing, graphics, sound, video or something else. Many standards have been created to deal with some of these problems. Unfortunately, standards sometimes lack Amiga support. In these cases, we have to rely on conversion utilities.

Language Translation

If you have used the AltaVista search engine, you may already be familiar with their Babel Fish language translation service. This service can translate French, German, Italian, Portuguese and Spanish from/to English. It is very fast and claims to be very accurate. If you have a web browser, such as IBrowse, you can already access this service using it's HTML submission form. But, there's a better way.

Provided that you have internet access on your Amiga, Cristian Gallas' Freedom Translator, can give you access to this service directly from various Amiga applications. ARexx scripts are included for FinalWriter, WordWorth, Yam, IBrowse, AWeb and AmIRC; and others can be easily created. FTranslator can also be used standalone.

The Babel Fish service limits the amount of text that you can translate at one time; but, it is easy enough to break up a larger document into smaller pieces.

If you have a need for language translation, such as for video subtitling, this might be worth taking a look at. Freedom Translator is freeware.

Microsoft Word Documents

Unfortunately, the world seems insistent on forcing the Word document format on us non-Microsoftians. It's like a virus that is spreading uncontrollably. Fortunately, something is available to help.

Word Converter, by Peter Drapich, can read documents created with Word and export them in ASCII (text), AmigaGuide, HTML and RTF formats.

Support is included for DOS/Windows versions 2,5,6,7,8 and 97, as well as, Word 4 and 5 for Mac. Documents with password protection can also be decrypted.

Currently, information such as formatting codes and text attributes, are ignored; but, support is expected in an upcoming release. ARexx scripts are provided to facilitate importing Word documents into PageStream 3 and CygnusEd; others could be created, too.

Word Converter is shareware, and can be registered for US$15. A demo version, limited to 1000 characters, is available.

Clip-Art

If you need to work with clip-art or drawing formats that are not supported by Amiga applications, Henk Jonas' MetaView might be just what you need.

MetaView can import files in the following formats: AmigaMetaFileFormat (AMF), Computer Graphics Metafile (CGM), CorelDraw (CMX), Drawing 2D (DR2D), DrawStudio Drawing (DSDR), Drawing Exchange File - AutoCad (DXF), GEM Metafile (GEM), HP Graphics Language (HPGL), Windows Metafile (WMF), WordPerfect Graphic (WPG) and XFIG.

Export support is included for: Adobe Illustrator (AI), AMF, CGM, DR2D, Encapsulated PostScript (EPS), GEM, HPGL, Interleaved Bitmap (ILBM), Java Metafile (JMF), WMF and XFIG.

ARexx scripts are provided for adding support to Art Studio, Draw Studio, Final Writer, PageStream, Pro Vector, SuperView and WordWorth.

MetaView is shareware and costs US$20. The only limitation of the unregistered version is that it can't save images through it's ARexx port (useful for doing a lot of conversions).

HTML

As nice as HTML can be, it's not practical for all uses. Sometimes simple text is best. There are numerous HTML to text convertors available, one of the better ones is HTTX.

HTTX includes many options to control the conversion process, including: line length, indentations, ANSI, horizontal lines, alignment, file comments, headers, image text, file appending, file inclusion, and more. HTTX is freely available.

FinalWriter / ProWrite

If you use FinalWriter or ProWrite, and often have to search through old documents to find something, you know that it can take a long time. With Arian Kulp's MultiRead, this process can be made much faster.

MultiRead will read a FinalWriter or ProWrite file and output the contents as standard text. By doing so, you can view these files without having to first start the word processor.

It is even more useful if you use it in conjunction with a file manager, such as Directory Opus. Once configured to do so, you would be able to read these word processor files at the click of a button - just like you would any text files. MultiRead is freeware.

NewTekniques Daily TekTicker

NewTekniques magazine is celebrating the one-year anniversary of the NewTekniques Daily TekTicker, your source of technology news every weekday. Located at www.newtekniques.com/TekTicker, the NewTekniques Daily TekTicker provides the latest technology and NewTek news from around the world. See a different LightWave 3D image every weekday and participate in the interactive Question of the Day. It's all available at www.newtekniques.com/TekTicker

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Project Studio One

Project Studio One, from Training Organizational Productions, is an effects sampler, designed to "provide tools and materials that," according to the developer, "could sweeten or enhance projects for every single user of any version of NewTek's Video Toaster."

BY BOB KETCHUM

WHAT YOU GET

According to the packaging, the CD-ROM contains a total of 152 effects: By my count, this appears to be incorrect. I'll get to that shortly.

The only documentation for this product is contained on the CD-ROM in two text files. Though they are small, they do tell you what you need to know—and then some.

As a bonus, Dimension Technologies' Wipe Studio Lite is included. The main limitation of the Lite version is that you can not create color wipes. You can create your own custom matte and softedge transitions and other conversion functions.

THE EFFECTS

The effects are organized into four different directories: A2000_3.x, A2000_4.x, A4000_3.x, A4000_4.x. This can be a bit confusing...If you have a Toaster 2000 in an A3000, which do you choose? Think of it this way; 2000 means non-AGA and 4000 means AGA. 3.x and 4.x refer to the version of Toaster software that you are running.

Some of the effects include both pull-on/push-off or in/out variations. I have separated these for the purposes of this review.

On an AGA system, the effects are as follows (effects + variations): Animals (6+4), A/V Arts (5+1), Border(9+7), Dissolves(1), Flight(3+1), Industry(9+1), Organic(2), Overlays(7), Patriot(5+1), People(4+2), Seasons(14+3), Shapes(4), SoftEdge(1), Special(11+4), Sports(8), Trajectory(1), Transportation(5+2), Weddings(3+1), and Wipes(12+2). If you add that up, you get 110 effects plus 29 variations...for a total of 139—not 152, as stated on the packaging.

For non-AGA users, the number of effects is reduced: Animals (3+1), A/V Arts (4), Border(6+4), Dissolves(1), Flight(2), Industry(8), Organic(2), Overlays (7 Framestores), Patriot(3+1), People(3+1), Seasons(7), Shapes(3), SoftEdge(1), Special(7+1), Sports(8), Trajectory(1), Transportation(3+1), Weddings(2), and Wipes(12+2). This is a total of 94, 83 effects + 11 variations.

In Project Studio One, some folders only include Fall and Winter effects. Spring and Summer effects are part of the Project Studio Two CD-ROM (see on-line review).

A nice touch, is that Cine.Man uses a crouton style where Program-to-Preview transitions are depicted such that you can simply look at the crouton to determine the action of that effect. This can be very handy. For example, on croutons, black designates Program, while white refers to Preview. Thus, if a crouton shows a dog running, with black on the left and white on the right, then the transition is of a dog running by, dragging the Preview from right to left over the Program.

THE SCORING METHOD

When rating these effects, I kept in mind that any collection of this type, is designed for a very wide scope of applications. Their usability will depend on who is using the effects, and what situation they are used in.

The rating system I used, is not based on wow-factor or even how an effect would be used. Rather, I have rated them on how well the transition works or looks in general, without regard for whether it is only good for a particular application.

THE SCORES

Of the 110 different effects (A4000_4.x), I scored 11 as NOT USABLE - meaning that they leave much to be desired. 41 scored FAIR - the effect is usable; but, borders on lame. 50 scored OK - a perfectly usable effect for a particular need. At the top, 8 scored GOOD, a good idea which I think could be used often. With the exception of one, all of the effects that scored GOOD were non-AGA.

CONCLUSION

Depending on the kind of projects you do, this collection has 58 effects, plus variations, which I feel are potentially usable - and as many as 99, if you're not as picky as I am. My overall impression is that the CD-ROM is worth buying, even if you do have to wade through some wankers to get to the gems—and don't forget the free bonuses that are included. There is a little something for everybody here.

A complete, categorized listing of all the effects on this CD-ROM is available on-line.

Cine.Man Toast Project Studio One is available for $59.95 + 5.95 S/H, and can be ordered from DVS Direct (1-800-379-7267) or Training Organizational Productions at (256) 883-1418.

Continued from page 20

You'll notice the two splines now flow smoothly into each other. You'll also notice a dotted line extending from the end of each, and reaching to the second point of the opposite spline (Figure 3a). This line is not only a visual way to see which spline the selected one is smoothing into, which becomes quite useful in more complex spline cages, but also indicates that the spline now has a control point on the end. Unselect the original spline, then delete the mirrored copy, and you'll see that the remaining spline still has these dotted lines extending to two points, which are left over from the mirrored spline.

These keep the ends of the remaining spline from snapping back to their original shapes. Now when we lathe this, the center will be completely smooth.

4. Select the Lathe Tool and open its Numeric Panel. Set the Sides to 24 or higher (I generally use between 40 and 60) and set the Lathe Axis to Y. Make sure the Center values are all zero, then click 'OK' and press 'Enter'. You should now have a solid glass object, similar to Figure 4. To make sure you have the polygons facing outward, select a few on the stem of the glass and look for their surface normals. If these are pointing inward, deselect everything, and press 'f' to flip them.

5. Open the Surface Panel and create a surface called "Glass" and apply this to the object. Save this object as "WineGlass.lwo" and load it into Layout. It's time to make it look like glass.

6. The first thing to do is make the surface transparent, so raise the Transparency to 100%. Also, raise the Specularity to 75% or higher, Reflectivity to around 25%, and lower the Diffuse level to 0%. Finally, activate Smoothing and increase the Refractive Index to 1.5.

7. We won't see a lot happening yet since we really don't have anything for this glass to refract, so let's load the "chessboard.lwo" object (or "emptychessboard.lwo") from the "Objects/Games/Chesspieces" directory, and place the glass on this. Position the camera so we're looking down on the glass from an angle. Activate the Gradient Backdrop option in the Effects Panel, then turn on the Trace Refraction option in the Render Panel (Camera Panel for LW <= 5.0). Finally, press 'F9' to do a test render. This could take a while, but you should end up with an image something like Figure 5.

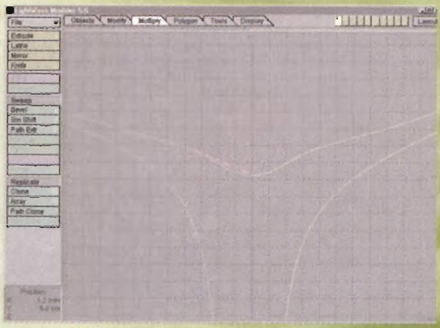


Figure 3: Detail showing the smoothing that occurs between the original and the mirrored splines.

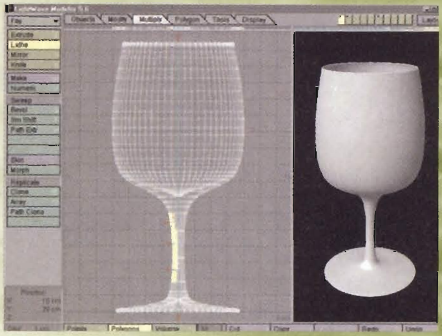


Figure 4: The finished glass after lathing. Polygons are highlighted to reveal the direction of their surface normals.

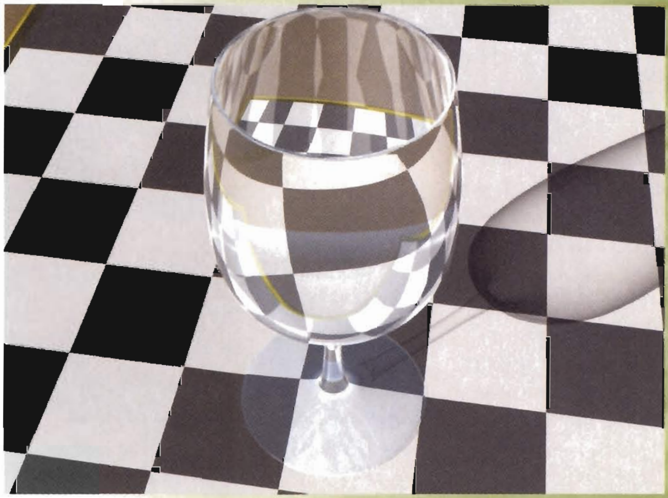


Figure 5: A quick render of the wineglass, showing one of the most commonly made mistakes.

Look at this image closely. The stem and base of the glass look okay, but if you look closely at the top, you'll see something that's not quite right. Also, the inside surface, seen through the mouth of the glass, may look right at first, but the front-most portion of the glass acts as though the entire top was solid glass, and not hollowed out. What's happening, is that rays of light are hitting the visible glass surface, being bent, and then continuing on their way until they hit another surface. The problem is that the rays don't know when they're leaving the glass volume; so from the instant they hit glass, everything else they encounter afterwards is considered to be INSIDE a glass volume. In this case, that includes the chessboard, as well as the background gradient. At the mouth of the glass, this is most obvious, where the furthest wall of the glass is seen to act like a concave lens - making everything look smaller. The foreground wall

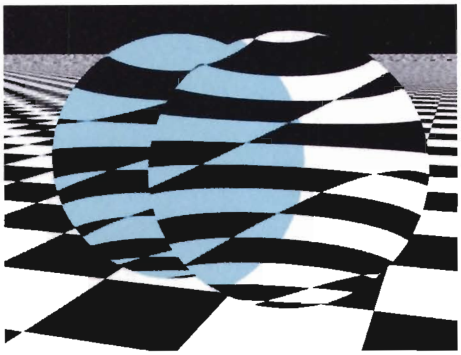


Figure 6: Two lenses with the same IOR. Both are refracting, but the blue one, as seen through the first, is only adding its color, and not adding to the refraction.

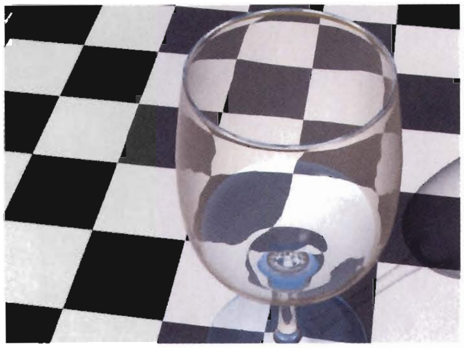


Figure 7: With the inner air surface, the same wineglass looks much more realistic.

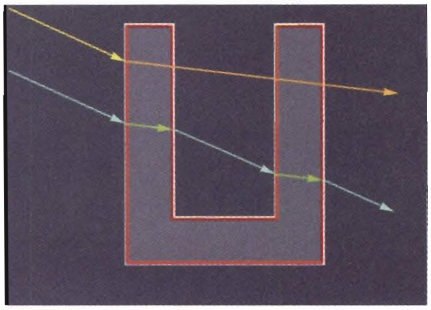


Figure 8: Normally a ray (yellow arrow) would intersect the glass surface (light blue line) and be refracted once, ignoring any successive encounters with the same surface (orange arrow) and continue on its way. With the addition of an air surface (inner red line), a ray (blue-green arrow) will refract at the glass surface (green arrow), then return to its original angle when it encounters the air surface. The next surface it encounters will be glass again, where the procedure repeats with a ray passing through alternating refractive values.

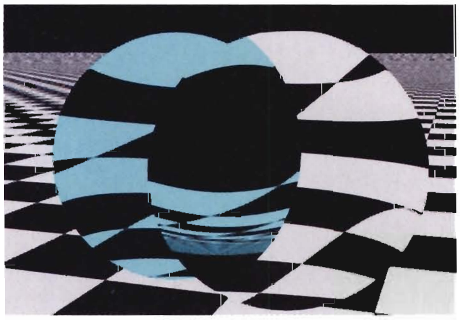


Figure 9: The inner air surface applied to the lenses allows the refraction of the distant one to be visible through the first.

is magnifying everything like a solid, completely ignoring the fact that there's nothing between them. In fact, in this area, where you would expect rays to hit both the front wall and the back wall, only the front wall is being used to calculate refraction. In cases where a ray is passing through two or more consecutive surfaces, with the same refractive index, only the refraction of the first one is actually applied. The subsequent refraction indices have no effect, until LightWave finds another surface that has a different value; at which point, a new angle is calculated. This does not mean that those subsequent surfaces are ignored, since any color, texture, or other attributes will still be seen through the first surface. Only the refraction attribute has no effect, as can be seen in Figure 6, since the ray of light is already considered to be in the same medium. Placing certain types of transparent plastic in water has the same effect, where the plastic seems to completely disappear if it has the same refractive quality as water.

We need to let LightWave know when the light is LEAVING the glass material, so it can correct the refraction. To do this, we add a second, inward-facing surface to let LightWave know when a ray is exiting an object. This inner surface will typically have a Refraction Index of 1.0, but occasionally, you will want another value instead.

8. Go back to Modeler and switch to the second layer. Use the Get command to grab the textured glass from Layout. Copy this object, and then press the 'f' key to flip the polygons of the object that's still in the layer. Change the surface name to "Air", then paste the copy we just made back into this same layer. We will now have two copies of the object, the textured glass we just rendered, and a second one with its polygons flipped inwards, called Air. Merge points, then use the Put command to send this glass back to Layout, replacing the one that's already there.

9. In Layout, select the Air surface and make it 100% transparent and 0% diffuse. Apply Smoothing to it and then do another test render.

This time, the hollow nature of the glass will be visible through the wall and it will no longer act like a powerful magnifying glass. LightWave now knows that a ray is hitting the first surface, which is glass, and then quickly exits when it hits the air surfaces, which returns the ray to its original angle. Then the ray passes through the center and hits the far wall, where once again, it encounters a glass surface, followed by another air surface (Figure 8).

This Air surface also helps eliminate the chances of two consecutive surfaces having the same value, which corrects the problem encountered in the lens illustration. Applying an inner air surface to these, allows the refraction of the distant one to be seen, and refracted again, through the closer one (Figure 8). Now you could try that famous Galileo experiment in LightWave.

This works fine for empty glasses, but what about ones that have a liquid in them? This would introduce a third refractive medium, which would complicate things slightly.

10. Let's go back into Modeler and add a liquid to our glass. Go into a new layer and Get the wineglass that we've been using in Layout so we have the surfaces that were set up there. Use the Polygons Statistics panel ('w') to select the polygons with the Air surface, then cut these. Go to a new layer and Paste them here.

We're going to use these polygons to create a body of liquid to fill the glass. Since liquid forces air out from between itself and its container, we don't need an air surface along the glass sides where our liquid will be. Instead, we'll just change the surface of the air polygons we already have here.

11. Use the Lasso tool to select an area of the glass that will be filled with liquid (Figure 10), then cut these polygons and place them in another layer. We still have two layers of polygons here, the ones that form the inside of the glass, and the ones that form the outside. Since we've cut these from the rest of the glass, these two layers are no longer connected, so by selecting polygons of the outer layer, then Select Connected ('|'), we can select only the outer polygons and leave the inner ones alone (Figure 11). Cut these outer polygons and paste them back into the previous layer with the rest of the air polygons.

You should be left with only the polygons that make up the inside volume of the glass.

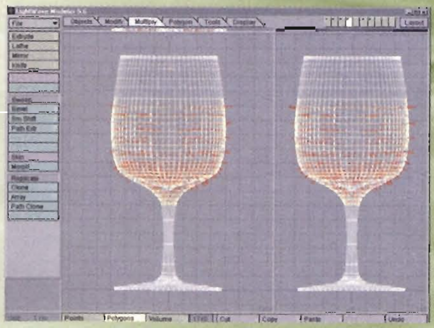


Figure 10: A selection of air polygons that will be used to fill the glass.

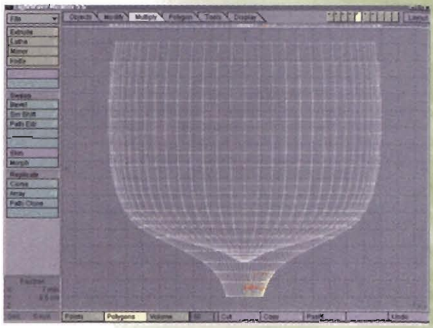


Figure 11: Close-up showing polygons that can be used to select the rest of the outer layer, leaving the inner layer untouched.

12. Open the Surface Panel and create a new surface called Liquid. Change the color to red to make things less confusing later. Apply this surface to this layer and we now have a body of liquid - almost. Copy these polygons and paste them into the previous layer as well. Now, copy all these air and liquid polygons (they should form the entire glass structure again) and paste them back into the layer that only has our Glass polygons, then merge points. The glass should be complete again, but with a new liquid surface in one section.

All we need now is a liquid surface over the top.

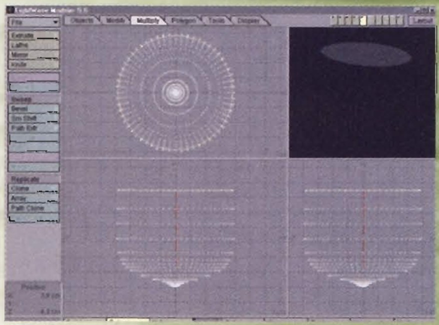


Figure 12: Merging all the polygons results in a single flat disc and several unattached pints that can easily be deleted

13. Go back to the layer with the liquid surface we just created. Select all the polygons in this layer and perform a Merge Polygons on them ('Z'). You will be left with a single flat disc-shaped polygon that fits where the opening used to be (Figure 12). Use the Point Statistics panel to select all the remaining points that are no longer attached to anything, and delete these.

14. To make this liquid surface a little more believable, we need to add a simple meniscus to it. Select the polygon, which should have it's normal pointing down (Figure 12), and bevel this with an Inset of 0.5 mm and a Shift of 1 mm. This will create a small downward bevel, and the original polygon will still be selected. Repeat the Bevel, but this time use 1 mm for both the Inset and Shift amounts. Do this a third time, but using 1 mm for the Inset and 0.5 mm for the shift. This will result in small rounded bevel around the outer edge of the disc (Figure 13).

15. Since these polygons are facing downward, we might as well give them an Air surface, so open the Surface panel and change back to Air. Now, to create the upward facing liquid surface, simply copy these polygons, and follow this by flipping the originals. Now open the Surface Panel and apply the Liquid surface again. Finally, paste the copy we have back into this layer, which still has the Air surface, and merge points. You should now have a saucer-like meniscus object with an air surface on the bottom and a liquid surface on the top (Figure 13).

You might want to create separate surfaces such as a Glass -> Liquid surface for the sides of the

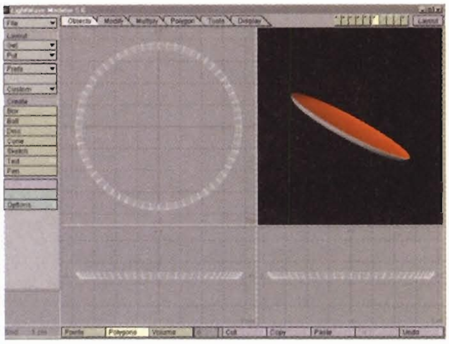


Figure 13: The finished meniscus created with three bevel operations, shown here with a white air surface and a red liquid surface.

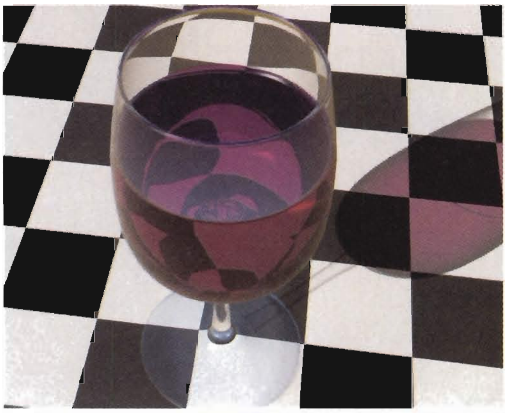


Figure 14: A wine filled wineglass making effective use of three different refraction values.

liquid and an Air -> Liquid for the meniscus. This will allow you to set certain special surface attributes that you only want to occur between two materials. For instance, the surface of water is reflective and specular, but a water surface that is against a glass wall is not. Meanwhile, a glass surface is generally always reflective to some degree, whether it's exposed to air or water. It's also a good idea to limit the use of traced reflections on the inside surfaces of objects like these, since they can have a very severe impact on render time.

16. Copy this meniscus over to the rest of the wineglass, and paste it here. Do NOT merge points though! Since we have Smoothing applied to the glass surfaces to create a seamless, polished look to the object, if we merged points, that same glass surface would suddenly try to smooth into the liquid surface of the meniscus during rendering. This would cause unwanted distortions in the refraction just above the meniscus.

17. Save this glass as "Wineglass-full.lwo" and go to Layout. You should still have the original wineglass here. Save this to preserve the surfaces, then use the Replace Object button on the Objects panel and select the Wineglass-full object. Since we used the previously surfaced wineglass when we created the liquid surface in Modeler, it will still have the glass and air surfaces intact. All we need to do is set up the liquid surface.

18. Open the Surfaces Panel and select the Glass surface. Rather than repeat a bunch of settings on the liquid surface that we just did on the glass one earlier; we'll just 'borrow' them. Create a texture preview of this glass surface, then select the Liquid surface. Click on the glass texture preview we just made and click 'OK' on the requester that pops up. This will copy the glass texture over to the liquid one, and now we can just work on the attributes that we want to be different. First, let's make this surface a dark red, since this IS a wineglass. Since liquids are also less dense than glass, lower the Refractive Index to around 1.3, to approximate the value of water. Finally, activate Color Filter and lower the Reflective Level to 0% (If you have a separate surface for the liquid surface at the top, you can leave this as reflective). We're now ready to press the 'F9' key, again.

Figure 14 shows how all the surfaces react through one another. The chessboard is slightly distorted through the distant rim and the base, as is the surface of the wine as seen through the forward rim. Also, the wine is distorting the chessboard, as well as the bottom of the glass. You can see the center of the glass bottom through the top of the wine surface.

This technique doesn't lend itself well to animations where you'd want the liquid to move around against the glass walls, like you would have in an animation where you would be pouring or splashing the liquid. In this case, you would simply use the original empty glass (with the inner air surface), and place a liquid object inside, which has its own air surface, then deform this in any of several ways (RealFlow is an excellent plug-in for this type of work, or HyperVoxels can be used as well).

If you look really close, you might notice a small flaw in the liquid. The opacity is constant across its surface. Since its color is derived from the surface, the thickness or volume of the liquid is not taken into account. There are ways to simulate this, such as through the use of a Fresnel shader to alter the transparency according to the viewing angle ("Gems That Will Make the Cut" - Oct/Nov 98). This works well for simple spherically shaped objects like gemstones. Transparency Image Maps can also be used for more complex shapes, but again, these are limited to the surface of the object.

PART 2: Crystal Ball

What about objects that have color details inside, such as smoked glass or marbles? For these, we can use the old method of layering surfaces, to create a voluminous effect ("Fun With Explosions: Part 2" - Apr/May 99). However, with refraction, there's a trick to it, as usual. This time we'll use a simple crystal ball as our test object.

19. Enter Modeler and create a sphere with a 10 cm radius and a Tessellation Level of 3. Give this the Glass surface that we've been using, then copy this sphere into memory. Change the surface to Air now, and flip the polygons, then paste the sphere we just copied back into the layer and merge points. This just created our crystal ball, so we can save this as, what else, "CrystalBall.lwo".

20. Now, create another sphere in a new layer, slightly smaller than the first (9.5 cm radius will do). Give this sphere a new surface name of "Crystal Murk". As you might have guessed, this will be used to add some texture inside our crystal ball. Save this object as "CrystalMurk.lwo", then switch over to Layout and clear the scene.

You've probably already played around with spheres and checkerboards a dozen times — we'll do it again here, since it's an excellent setup for illustration purposes.

21. Load the chessboard object, or, load a ground object and apply a checkerboard texture to it. Next, load the crystal ball we just created and move it 10 cm up the Y-axis so it's not buried in the ground Activate the Gradient Backdrop again, and then turn on the Raytracing options in the Render Panel. A render now would produce just another typical "Crystal Ball Over Chessboard" image (Figure 15), but we'll refer back to this over the next few steps, so go ahead and render it - you know you want to! You might want to save the scene, in case of a crash.

22. Now that we've seen the basic crystal ball, let's dress it up a bit. We can add a texture through this in a couple ways. The most obvious method is to simply apply it to the glass surface, but what if you want the texture to appear to be INSIDE the ball? The next obvious method is to put another ball inside and apply the texture there, so let's do that. Load the CrystalMurk ball (CrystalMurl.lwo) and parent it to the crystal ball we have. It should now be sitting inside it.

23. We'll start with a simple glowing sphere first, so raise the Luminosity to 100% and lower the Diffuse to 0%. Give this sphere a bright, intense color (255,0,255 is good). Make sure Additive and Smoothing are active. Next, under the Advanced Options tab, activate Transparent Polygon Edges. We now have a simple glowing sphere inside the ball. Press 'F9' again and watch closely (Figure 16).

Probably the first thing you'll notice is that the ball doesn't refract as much, and appears hollow instead. Also, a visible hard edge can be seen around the glowing sphere inside, even though we gave it transparent edges. That's our first clue! The Edge Transparency is forcing LightWave to treat this sphere as though it was transparent. The Additive option is doing the same thing, and if you look at the Refractive Index of this surface, you'll see a value of 1.0! This is effectively putting a big bubble of air inside our sphere!

In fact, what's actually rendering is only the front half of the sphere, since we now have two surfaces inside that have a refraction of 1.0. The inner air surface at the back is no longer affecting it since it's the second 1.0 after the glowing sphere. Now, if you remember from earlier, when we have two identical refraction values in series, only the first one has any effect. So, we could just give that glowing bubble the same refraction as the crystal ball.

24. To do this, we need to first raise the Transparency above 0% in order to activate the Refractive Index field. Another option, which is friendlier, is to click the 'Texture' button for the Transparency channel. This will open a texture panel, but don't do anything with it. Just leave it set to Planar Image Map, but with no image specified! This tricks LightWave into flagging this surface as having transparency and activates the Refractive Index field. If you render this again, you will have the effect you were expecting (Figure 17).

This only works well if the inner sphere is only slightly smaller than the crystal ball. If it's too small, then you will likely end up with some unwanted internal reflections on the inner sphere,

Continued on page 50

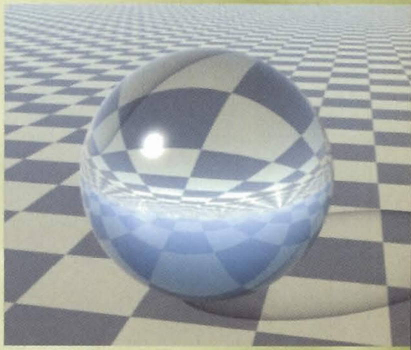


Figure 15: Oh look! ANOTHER glass ball and checkerboard! Wow.

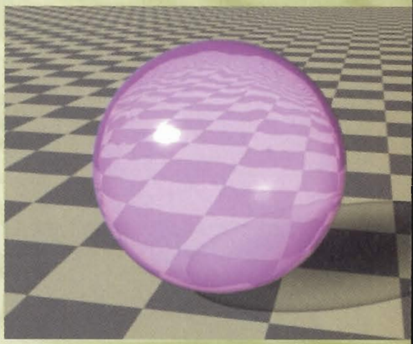


Figure 16: A hollow looking glass ball that appears to be filled with a glowing gas.

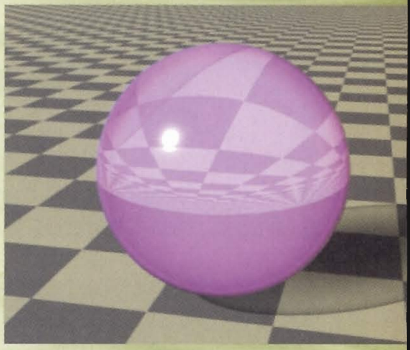


Figure 17: Now we have a solid crystal ball with a glowing center. Note the refraction is identical to figure 15.

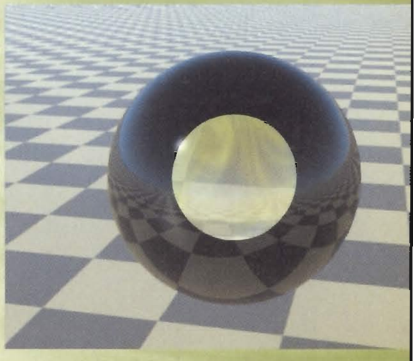


Figure 18: The Steamy Shader applied to the outer glass surface causes an unexpected tunnel vision ct.

BY
JARED BROOKES

The Sky's the Limit

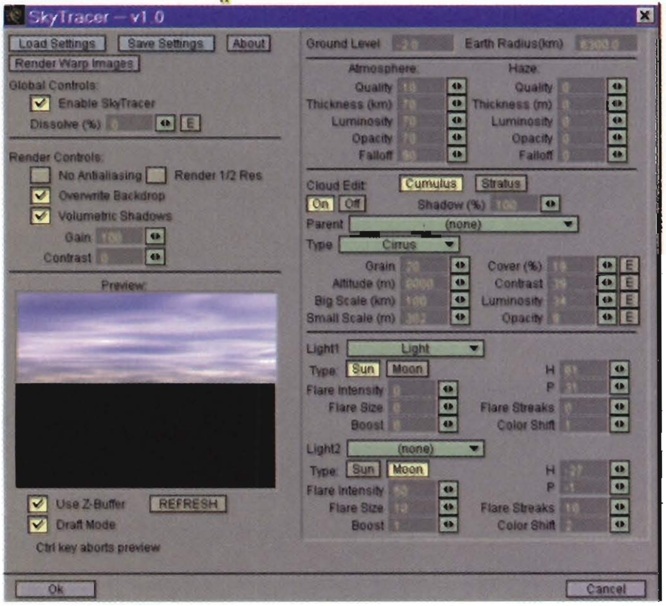
Using LightWave's SkyTracer Plug-In

If you've been wondering about the SkyTracer plug-in, or have found it to be too complex or confusing, now is your chance to see it in action. By the time you're done working your way through this tutorial, you should have a pretty good feel for how SkyTracer works, and a sense for the good results that can be achieved with it. SkyTracer is a very powerful and flexible LightWave plug-in, and is something that I'm sure you'll find very useful.

1. Begin Layout or clear the current scene to create a new empty scene. Make sure that you're at frame zero. Select the Camera in the Edit section. Choose Rotate, and press 'n' on the keyboard (for numeric input). Type 0 for Heading, -15 for Pitch, and 0 for Bank. Press 'Enter' twice to keyframe the Camera at frame zero (this will give us a better view of the sky). Select the light, and choose Move. 'n' for numeric. Enter 0,0,0. Rotate the light to 180,0,0. Keyframe the light. The light should be facing the camera, with the camera facing into the +Z axis.

2. With the light still selected, press 'P' to open the lights panel. Check No Diffuse and No Specular. Leave the intensity at 100%. By turning on No Diffuse and No Specular, you ensure that the light won't have any effect on objects in the scene (it won't illuminate them, and it won't create specular hot-spots). This light will be a dedicated SkyTracer light.

3. Go to the Effects panel; click on the Image Processing tab. In the first Pixel Filter plug-in slot, load SkyTracer. Next, click on the Options button. The SkyTracer panel will pop up (Figure 1). Enable SkyTracer should be checked. Select the Light named "Light" in the Light1 section of the SkyTracer panel.


SkyTracer — v1.0
Load Settings
Save Settings
About
Render Warp Images
Ground Level
Earth Radius(km)
Atmosphere:
Haze:
Quality
Thickness (km)
Thickness (m)
Luminosity
Opacity
Falloff
Cloud Edit
Cumulus
Stratus
On
Off
Shadow (%)
Grain
Altitude (m)
Big Scale (km)
Small Scale (m)
Cover (%)
Contrast
Luminosity
Opacity
E
Type:
Sun
Moon
H
P
Flare Intensity
Flare Size
Boost
Flare Streaks
Color Shift
Preview:
REFRESH
Ok
Cancel

Global Controls:
☑ Enable SkyTracer
Dissolve (%)

Render Controls:
☐ No Antialiasing ☐ Render 1/2 Res
☑ Overwrite Backdrop
☑ Volumetric Shadows
Gain
Contrast

☑ Use Z-Buffer
☑ Draft Mode
Ctrl key aborts preview

Parent (none)
Type Cirrus
Light1 Light
Light2 (none)

Figure 1.

4. Let's simplify things a bit, and build the sky from the ground up. Set all of the Haze settings to zero. Then, in the Atmosphere section, enter the following values:

Thickness 70
Luminosity 70
Opacity 70
Falloff 70

Some amount of Luminosity is required, before Thickness will have any affect. A setting of 70, is a good starting point.

5. Since we want to start with one component of SkyTracer, and then add additional features, click Stratus and make sure that Cloud Edit is set to Off. Then, click on Cumulus, and make sure that its Cloud Edit section is also turned off. Set Flare Intensity, Flare Size, and Boost to zero. Clicking on REFRESH, should give us a preview that shows a dim blue sky that becomes lighter towards the horizon.

6. Okay, now it's time for us to get a feeling for the Atmosphere settings section. It's important to note that Luminosity and Opacity are closely tied together (you'll see how in the next few steps), and that there is also a relationship between Thickness and Falloff. That said, let's start playing around with some of the Atmosphere parameters.

Try raising Thickness to 100. This will add a bit more atmosphere, and as you'll notice if you click REFRESH, the sky near the horizon is slightly orange. This orange tint is useful for a sunrise or sunset sky.

7. Increase Luminosity to 100 and do a REFRESH. The horizon has become even more orange, but the brightness of the sky is about the same.

Next, drop the Luminosity setting back down to 70. This time, increase the Opacity level to 100, and REFRESH. The sky should look the same.

This shows that in most situations, you can use either Luminosity or Opacity, since they usually have the same effect. Now, set Opacity back to 70 again and REFRESH.

8. The next option on our list is Falloff. Increase it to 100, and click REFRESH. You'll see that it has both brightened the sky and removed most of

Figure 2.

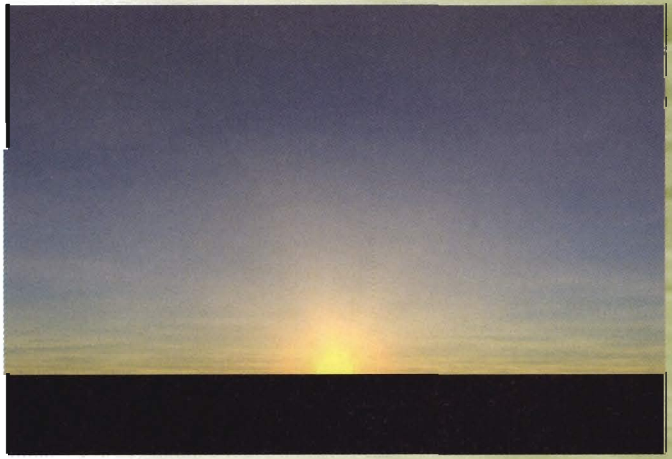


Figure 3

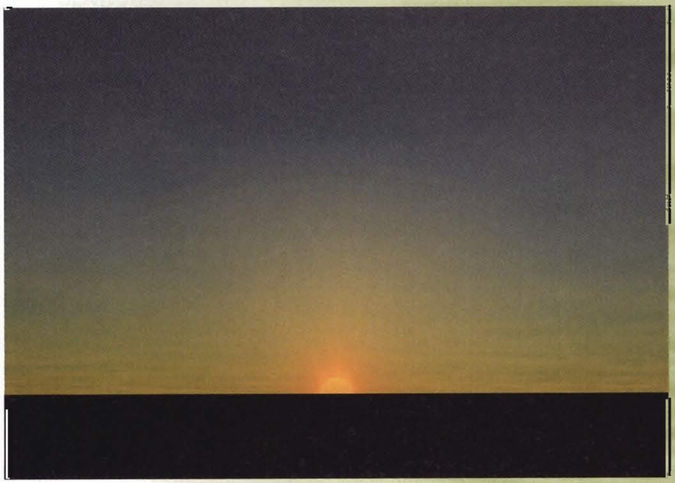


Figure 4.

the orange tint from the horizon. Now, drop Falloff down to 40, and you'll notice that the sky is much darker - it's getting late.

Set Falloff and Thickness back to 70 again.

9. The Cloud parameter section of the SkyTracer panel is split into two main sections: Cumulus and Stratus. Start by switching Cumulus Cloud Edit to On If you're using LightWave 5.6, set the Type to CumuloNimbus.

10. Try these settings for the Cumulus cloud parameters:

Grain 20
Altitude 2000
Big Scale 30
Small Scale 30
Cover 20
Contrast 30
Luminosity 20
Opacity 22

By clicking on REFRESH, you'll see that this gives us a reasonable blue sky with a fairly low-lying cloud layer. See Figure 2.

Cover increases or decreases the amount of cloud cover. A value of 20% is about average, 10% is almost nothing, while 30% usually results in heavy cloud cover. Contrast changes the level of cloud contrast against the sky background. Luminosity adjusts the brightness of the clouds themselves. Opacity makes each cloud appear less or more dense.

11. Next, increase the Altitude of the clouds to 8000 and REFRESH. Because the clouds are now so far away, there are too many of them in view (especially at the horizon). This is where Big Scale and Small Scale come in. Having the Big Scale value set higher than the Small Scale value will usually result in many small clouds. If Small Scale is higher, you'll generally get the opposite effect (a large blotch of clouds).

Since we want to reduce the number of small clouds, let's start by increasing Small Scale to 180. A REFRESH reveals that the problem has been partially alleviated, but the "holes" between the clouds appear to be almost circular. This is too uniform of a pattern and doesn't look realistic. Raise Big Scale to a value of 100. By increasing the Big Scale value, we stretch the clouds horizontally, creating a much more realistic looking cloud layer. Do another REFRESH to see the result.

12. Something that we've yet to make use of is the Flare section of SkyTracer's panel. Enter these settings:

Flare Intensity 124
Flare Size 28
Flare Streaks 14
Boost 166
Color Shift 1

Flare Intensity and Boost increase the apparent brightness of the flare. The Flare Streaks option works much like Layout's Streak Density and Streak Sharpness options for light lens flares. Color Shift adjusts the spread and color of the flare.

Also in the Flare settings section, you'll notice H and P. These two parameters adjust the Heading and Pitch of the light in the SkyTracer preview window only. They're used for changing the flare streak angles.

If you change these values, you'll have to make the Heading and Pitch values of your Layout light the same, to get the same results when rendering.

A REFRESH, should show an image with the sun visible on the horizon.

13. For a morning look, try increasing Atmosphere Thickness to 100 (Figure 3). To change this to a sunset, raise Atmosphere Thickness to 110, and drop Falloff down to 55 (Figure 4).

14. So far, for Light type, we've been using the Sun setting. Let's try the Moon setting instead. In the Light1 section, click on Moon. Set Flare Intensity to 410, Flare Size to 60, and Boost to 120.

REFRESH. Your Preview image should look a lot like Figure 5. You could add subtle changes to the time of day by increasing the Atmosphere Falloff settings.

15. Throughout this tutorial, the light has been positioned along the horizon. One of the cool things about SkyTracer is how it responds to variations in the height of the light. For example, click Ok to go back to Layout. Close the Effects panel. Still at frame zero, raise the light to a Y-axis height of 1 meter. Keyframe the light in place.

16. Now, try doing preview renders, using the various settings that we've explored. Note how different some of the skies look with just a simple change in the height of the SkyTracer lighting. If you find that the rendered image is too bright, try lowering the Cloud Edit Luminosity setting. You may also want to reduce the Flare Intensity and Flare Boost levels.

As an example: after raising the light 1 meter on the Y-axis, render a quick preview. The image is a little too hot, and the flare is now clearly in front of the clouds. To fix this problem, reduce the Flare Intensity down to 380 and set Boost to 90. Then raise Cloud Edit Opacity to 200. By increasing the Cloud Opacity level, you make the clouds dense enough that the flare no longer shows completely through them. Now, the flare should be partially obscured by the clouds (Figure 6).

There's a lot more fun that can be had with this plug-in. Particularly interesting, is that you can add envelopes to Cloud Edit Cover, Contrast, Luminosity and Opacity, allowing you to adjust these parameters as the sun or moon rises or falls.

You could also try adding a second light, for a binary star system. Or play around with the Haze settings for pollution and smog effects. Make adjustments to Dissolve, Gain, and Contrast settings, add a null object and use the Parent option to animate the clouds. You could also experiment with Stratus clouds and (if using LW 5.6) Jet Streams.

Problems that you might encounter:

If you have objects in your scene, and they're not showing up in the SkyTracer preview, it's likely because the Z-buffer has not been updated. You can solve this problem by doing a super low resolution render in Layout, before you go to the SkyTracer options panel. It's usually best to use the Layout renderer to preview SkyTracer skies, since it will give you the most accurate image. Sometimes, the SkyTracer preview looks different than what the actual render will look like. Depending on the speed of your machine, Low Res or Medium Res (without anti-aliasing) will render fast enough to make effective previews. Remember that with LightWave 5.6, hitting F5 will take you back to the Options panel of the last plug-in that you were using.

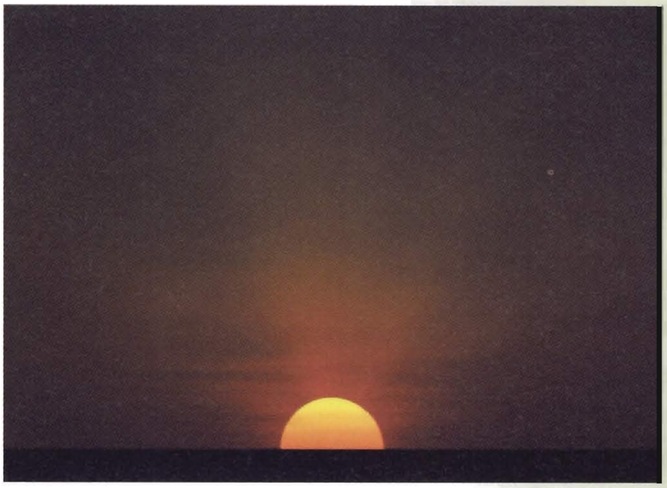


Figure 5.

If you render an animation or sequence and notice that on some frames the sky goes black, it's possibly because the camera has passed below Ground Level on the Y-axis. Take a look at the Ground Level option in the SkyTracer panel. If the camera drops below the level shown in this field, SkyTracer will not render the sky. For example, if the Ground Level is set to -1, as soon as the camera moves below the -1 meter mark, SkyTracer will render a black sky.

Well that's it for this tutorial. I hope that this helps you get started, and that you have found enough interest to experiment further with SkyTracer. You'll find that the results can be pretty impressive.

Jared Brookes is a free-lance LightWave modeler/animator. You can email him at jaredbrookes@hotmail.com

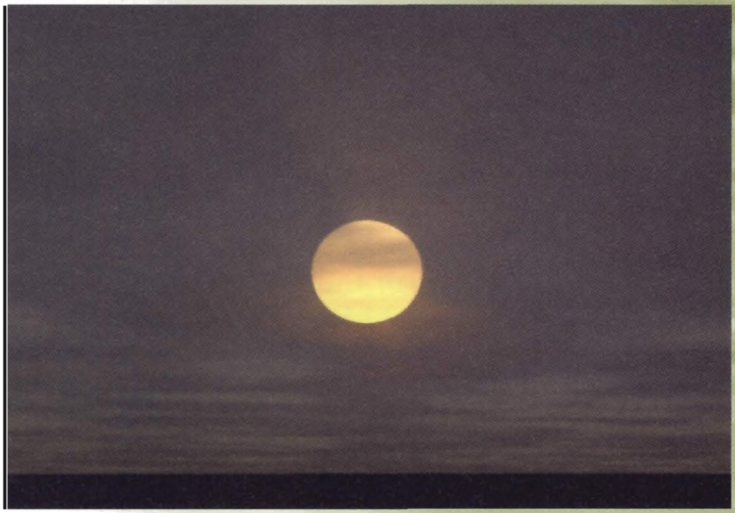


Figure 6.

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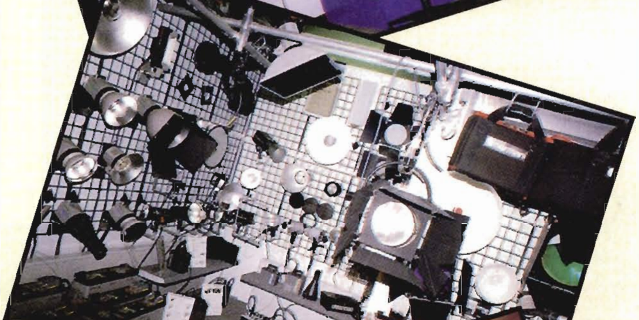

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SONY

DSR-PD100 3-CCD Mini DVCAM Camcorder

The smallest DVCAM camcorder, the DSR-PD100 is also the first one with built-in image capture capability. The highly compact camcorder features three 1/4" 380,000 pixel CCDs that allow two scanning modes: 480 progressive (for stills) or interlaced (for video).

- Three 380,000 pixel CCDs complement DVCAM with a high standard of quality for this class of camera. DVCAM offers superior video and audio quality, and reliability for professional use
- The CCD's can be switched to scan in two ways: Interlace Scan for recording moving images and Progressive Scan for recording still images
- Super SteadyShot compensates for unwanted camera movement without reducing image quality
- A built-in 12X zoom lens is supplemented by a 48X digital zoom that can provide really close up shots
- Manual control of focus, gain, white balance and shutter speed. Also has full automatic control
- i.LINK interface provides a single cable connection to transfer digital video and audio
- Records PCM digital stereo sound in both 48 kHz mode (16-bit) and 32kHz mode (12-bit). When a recording has been made in 12-bit mode, another stereo channel can be added later
- The DSR-PD100 has a 3.5" color LCD monitor with 184,000 pixels, opening 90° to the side and swiveling 180°. Also has a 180,000 pixel color viewfinder.
- Can record still images on both tape or removable media, such as Memory Stick
- Start/Stop/Zoom of the camcorder and VTR operation, plus slow playback or search can be controlled by the supplied wireless remote commander
- Supplied XLR adaptor attaches onto the hot shoe of the camcorder, allowing external professional microphones to be connected to provide high quality audio sources. Through XLR adaptor, DC power (+48V for a microphone is also supplied from the DSR-PD100
- A 0.7X wide conversion lens is supplied, complete with lens hood, lens cap and protective bag
- Includes 4 MB Memory Stick and Memory Stick/PC Card Adaptor
- Weighs just 1kg (2.2 lbs) with a battery and a tape. A magnesium alloy die cast body keeps it light but robust

DSR-200A 3-CCD Digital (DVCAM) Camcorder

Combining a compact and lightweight body with the superior picture quality of DSP (Digital Signal Processing) and the DVCAM format, the DSR-200A is the ideal acquisition tool for video journalists, event and wedding videographers, stringers and production houses. 500 lines of horizontal resolution, 48kHz or 32kHz digital audio, three hour record time, and minimum illumination of 3 lux is only the beginning. Other features include 16:9/4:3 capability, Steady Shot, high resolution 1-inch viewfinder, time code operation, time/date superimposition and an IEEE-1394 interface for direct digital output. Offers full automatic as well as manual control of focus, iris, gain, white balance and shutter speed.

- Variable servo 10X optical power zoom lens goes from 5.9 to 59mm in 1.7 to 24 seconds. The manual zoom rocker is continuously variable right up to where the digital 20X zoom kicks in.
- Sony's Super Steady Shot reduces high frequency camera shake without compromising image quality. SteadyShot uses horizontal and vertical motion sensors that allow it to work accurately while zooming, moving (even shooting from a car), and shooting in low light conditions.
- Has digital effects including audio and video fade, overlap and Slow Shutter.
- Automatic and manual focus, iris, shutter, gain and white balance. Iris is adjustable in 12 levels from F1.6 to F11, shutter from 1/4 to 1/10,000 of a second in 12 steps. Gain from -3dB to +18dB in 8 steps.
- Zebra Pattern indicator, built-in ND filter.
- Custom Preset function lets you preset, store and recall custom settings for color intensity, white balance (bluish or reddish), sharpness and brightness.
- Stores Photo, Date/Time, Shutter Speed, Iris, Gain and F-stop for easy recall. So if you have to re-shoot, you know your original settings for every scene and frame.
- Records Drop/Non-Drop Frame time code. Time code can be read either as RC time code or as SMPTE time code
- Has a large 1-inch B&W viewfinder with 550 lines of resolution for easy focusing even in low contrast lighting situations. Separate information sub panel displays time code, battery time, tape remaining and other camcorder functions without cluttering up the viewfinder.
- Records 16-bit/48kHz audio on one stereo track or 12-bit/32kHz with two pairs of stereo tracks (L1/R 1, L2/R2), so you can add stereo music or narration.
- One-point stereo electret condenser mic for clear stereo separation. Directivity can be selected from 0°, 90° & 120°.
- Automatic & manual (20-step) audio level record controls. Monitor audio with headphones or from the LCD panel which has an active VU meter.
- XLR input connectors for mics and audio equipment.

DSR-200A Field Package:
- DSR-200A Camcorder • NPA-1000/B Battery Case Adapter
- 3 NP-F930/B 7.2v 4000 mAH Batteries
- AC-V900/B AC Adapter, Triple Battery Charger
- VCT-U14 Tripod Adapter • LC-2000CP System Case

DSR-20 DVCAM Player/Recorder

The DSR-20 is a versatile DVCAM VCR with a very compact chassis and a variety of convenient functions for recording, playback and simple editing. It features auto repeat playback, power-on recording/playback, multiple machine control interfaces, AC/DC capability and i.Link (IEEE1394) input and output. And of course, it offers the stunning image and sound quality inherent to the DVCAM format.

DVCAM Quality
- Dual-size cassette mechanism accepts both mini size (up to 40 minutes) and standard size DVCAM tapes (up to 184 minutes) without an adapter.

Editing Capability
- Equipped with Control L interface, the DSR-20 can perform simple time code-based editing when connected to another DSR-20 or other similarly equipped VCRs/cameras like the DSR-30, DSR-200A or DSR-PD1. When using the FXE-120 or ES-3 EditStation System, the DSR-20 can serve as a feeder player.
- Has DV (IEEE 1394) input and output. When connected to other DV equipped machines, the DSR-20 offers digital dubbing of video, audio and data, without any deterioration of image and sound quality. In addition, in the "Digital dubbing including TC copy" mode, full information of video, audio and time code of the original tape can be copied to another tape. Especially useful when making working copies of the original.

Record/Playback Functions
- In addition to Control L, the DSR-20 also incorporates a Control S and RS-232 interface for remote control operation. Basic VCR functions can be controlled from a PC via RS-232, while Control S allows control via the optional DSRM-10 Remote Control. In addition, with the Control S input/output connector, two or more (up to 50) DSR-20's can be daisy-chained and controlled from one DSRM-10 Remote Control.
- External sync input enables synchronized playback with other VCRs. Especially important in A/B roll configurations.

Conveniences
- The DSR-20 be powered by AC or DC. Ideal for mobile applications, the DSR-20 can be connected to a 12V power supply like a car battery or battery belt & powered via the 4-pin XLR DC input.
- Can perform searches for Index Points, which are recorded on the tape as "in-point" marks everytime a recording starts. The DSR-20 can also search for photo data recorded on a DVCAM cassette by the DSR-PD100/200A/300, or where the recording date has been changed.
- Supplied with the RMT-DS20 Wireless Remote for control of basic VCR functions. And again, when two or more VCRs are connected via Control S, they can be simultaneously controlled from one wireless remote by simply sending one command to the master deck.

DSR-30 DVCAM Digital VCR

The DSR-30 is an industrial grade DVCAM VCR that can be used for recording, playback and editing. DV standard 4:1:1 sampling digital component recording with a 5:1 compression ratio provides spectacular picture quality and multi-generation performance. It has a Control L interface for editing with other Control L based recorders such as the DSR-200A DVCAM Camcorder or another DSR-30. It also has a continuous auto repeat playback function making it ideal for kiosks and other point of information displays. Other features include high quality digital audio, IEEE-1394 Digital interface and external timer recording. The DSR-30 can accept both Mini and Standard DVCAM cassettes for up to 184 minutes of recording time, and can playback consumer DV tapes as well.

- Records PCM digital audio at either 48kHz (16-bit 2 channel) or at 32kHz (12-bit 4 channel).
- Equipped with Control L, the DSR-30 is capable of SMPTE Time Code based accurate editing even without an edit controller. Built in editing functions include assemble and separate video and audio insert.
- By searching for either an index point or Photo Data recorded by the DSR-200A camcorder, the DSR-30 drastically cuts the time usually required for editing. The DSR-30 can record up to 135 Index points on the Cassette Memory thanks to its 16K bits capability.
- Audio lock ensures audio is fully synchronized with the video for absolute precision when doing an insert edit.
- Built-in control tray has a jog/shuttle dial, VCR and edit function buttons. The jog/shuttle dial allows picture search at ±1/5 to 15X normal speed and controls not only the DSR-30 but also a player hooked up through its LANC interface
- DV In/Out (IEEE 1394) for digital dubbing of video, audio and data ID with no loss in quality.
- Analog audio and video input/outputs make it fully compatible with non-digital equipment. Playback compatibility with consumer DV tapes allows you to work with footage recorded on consumer-grade equipment. Tapes recorded in the DSR-30 are also compatible with Sony's high-end DVCAM VCR's.

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QUICK DIAL 72

SONY

UVW-1400A Betacam SP Recorder

The UVW-1400A is a non-editing VCR which deliver Betacam SP quality and offer features for a wide range of playback and recording applications. RGB and RS-232 interface make it especially ideal for large screen, high quality video presentation, scientific research and digital video environments.

- Ideally suited for work in computer environments, because RGB signals can be converted into component signals and vice versa with minimum picture degradation.
- 25-pin serial interface allows external computer control of all VCR functions based on time code information. Baud rate can be selected from between 1200 to 38,400 bps.
- Built-in Time Base Stabilizer locks sync and subcarrier to an external reference signal as well as provides stable pictures.
- Built-in LTC Time Code and UB (User Bits).reader/generator
- Equipped with two longitudinal audio channels.
- Auto repeat of entire or a specific portion of the tape.
- Built-in character generator can display VTR status, time code, self-diagnostic messages, set-up menu, etc.
- Control of jog, shuttle, playback, record, pause, FF and REW with the optional SVRM-100A Remote Control Unit.
- Composite and S-Video as well as component via BNCs which are switchable to RGB output. The UVW-1400A has two switchable sync connectors and a Sync on Green.
- Built-in diagnostic function and hour meter.
- Initial set-up menu for presetting operational parameters.

UVW-1700G
Betacam SP Computer Graphics Frame Recorder

The UVW-1700G has all the features of the UVW-1400A (except foot switch control) plus it adds frame accurate video insert editing capability as well as RS-232 and RS-422 interfaces. These make the UVW-1700G ideal not only for conventional video program production but also for animation and computer graphics creation.

Same features as the UVW-1400A *PLUS*—
Uniquely equipped with both RS-232 and RS-422 serial ports for versatile system integration. Both serial ports are easily accessed via the set-up menu. Built-in time code capability combined with sophisticated servo servo system ensures frame accurate insert editing (video only) when connected to computer-based editing systems (via RS-232 port) or RS-422 equipped edit controllers. Ideal VCR for animation and computer graphics creation, where frame-by-frame editing is indispensable.

UVW-1800 Betacam SP Editing Recorder

All the features of the 1400A *PLUS*—

- Optional UVR-60 allows remote TBC adjustment.
- RS-422 interface for editing system expansion.
- Two types of component output; via three BNC connectors or a Betacam 12-pin dub connector.
- Frame accurate editing is assured, thanks to sophisticated servo control and built-in time code operation. In the insert mode of the UVW-1800, video, audio Ch-1/2 and time code can be inserted independently or in any combination.

PVM-14M2U/14M4U & 20M2U/20M4U
13-inch and 19-inch Production Monitors

Sony's best production monitors ever, the PVM-M Series provide stunning picture quality, ease of use and a range of optional functions. They are identical except that the "M4" models incorporate Sony's state-of-the-art **HR Trinitron** CRT display technology and have SMPTE C phosphours instead of P22.

- HR Trinitron CRT enables the PVM-14M4U and 20M4U to display an incredible 800 lines of horizontal resolution. The PVM-14M2U and 20M2U offer 600 lines of resolution. M4 models also use SMPTE C phosphours for the most critical evaluation of any color subject.
- Dark tint for a higher contrast ratio (black to white) and crisper, sharper looking edges.
- Each has two composite, S-Video and component input (R-Y/B-Y, analog RGB).For more accurate color reproduction, the component level can be adjusted according to the input system. Optional BKM-101C (video) and BKM-102 (audio) for SMPTE 259M serial digital input.
- Beam Current Feadback Circuit
- 4:3/16:9 switchable aspect ratio.
- True multi-system monitors they handle four color system signals: NTSC, NTSC 4.43, PAL, and SECAM.
- External sync input and outputcan be set so that it will automatically switch according to the input selected.
- Switchable color temp: 6500K (broadcast), 9300K (pleasing picture). User preset.(3200K to 10000K).
- Blue gun, underscan and H/V delay capability
- On-screen menus for monitor adjustment/operation.
- Parallel remote control and Tally via 20-pin connector.

PINNACLE SYSTEMS

miroVIDEO DC-30 *PRO*
PCI Capture Card for Windows 95/NT

Pinnacle Systems' miroVIDEO DC30 Pro is the ideal solution for creating professional quality video productions. If you create corporate, commercial, wedding, event, multimedia or Internet videos, the high-powered software bundle and state-of-the-art hardware of the miroVIDEO DC30 Pro gives you unbeatable results. Includes Pinnacle Systems' powerful TitleDeko character generator plug-in for Adobe Premiere 5.1. Add creative, custom titles toyour video productions with Emmy Award-winning technology. Use the full version of Adobe Premier 5.1 to capture, edit and output professional quality productions for video, multimedia, and the web with . Also includes 300 unique Pixélan Software Video SpiceRack transitions and a high quality video and audio breakout box. The breakout box allows for convenient placement of connections on your desktop.

- 2.4:1 compression ratio for a better final video image quality. Compression ratios under 4:1 are considered to be "broadcast quality."
- Full NTSC, PAL, SECAM, for worldwide compatibility.
- Real-time video overlay on the computer monitor eliminates the need for an external video monitor.
- Professional breakout box brings your connections up front and easily accessible

——— *Bundled Software:* ———

- Full version of Adobe's Premiere 5.1 editing software gives you powerful editing tools to create professional productions
- Bring Hollywood-quality graphics to your video productions with TitleDeko. Easily add amazing titles to all of your video productions. Titles can fade up, scroll and even blend with pictures. Apply glows, neon and metallic looks, textures, shadows and shapes to your titles with any TrueType font.
- Pixelan Software's Spice Rack gives you over 300 transitions to choose from.
- Sonic Foundry's Acid Music software lets you create royalty-free music for your productions.
- MiroINSTANT Video saves time and disk space with accelerated, intelligent rendering. When rendering and playing your final production, miroINSTANT Video overcomes the 2GB AVI file size limitation, allowing you to quickly put more video directly onto tape – in one pass.

DC-30 *PRO*	**799.00**
NEW! DC-50	**1649.00**

MiroVIDEO DC-30 *PRO* Turnkey System:

• 220-watt midtower case • Pentium 233 MHz MMX processor • PCI motherboard with 512K cache • ATI XPert-128 8MB PCI display card • 128MB of RAM • Quantum 3.2 GB IDE system drive • Seagate (Barracuda) 9GB SCSI-2 FAST/Ultra-wide hard drive • Initio 91004W Fast/Wide SCSI 2 controller • 3.5" floppy drive • Teac CD-532E 32X EIDE internal CD-ROM drive • Altec-Lansing ACS-43 2-piece speaker system • Focus 2001A keyboard • Microsoft MS mouse • Viewsonic GS771 17" 1280 X 1024 SVGA monitor • Windows 95 • MiroVIDEO DC-30 *PRO* video/audio capture card • Adobe Premiere 5.1 (full version) editing software, TitleDeko, Pixelan Software Spice Rack, Sonic Foundry Acid Music **$2495.00**

QUICK DIAL 731

canopus

DVRex-M1 DV Digital Video Editing

DVRex is a hardware and software bundle that offers a complete solution for the capture, editing and output of DV as well as analog video signals. Equipped with a software optimized Sony DVBK-1 hardware CODEC, a breakout box and Rex Edit software, the DVRex provides real-time capture and output of DV signals from your camera or VCR, allows seamless mixing of analog footage (S-Video or composite) with DV material, or can convert analog video into DV with the push of a button. DVRex also overcomes the 2GB limitation of the .AVI format. DVRex allows you tocapture up to 4GB (20 minutes of video) into one .AVI file and seamlessly capture it into multiple files

With the bundled Rex Edit software, capture and editing of native DV has never been so fast, easy and flexible!. Rex Edit features a timeline interface with real-time capabilities as well as effects and transitions. It also lets you control your DV camera or deck, batch capture video and audio, add new audio tracks and scrub in real-time.

Hardware Features:

- High quality, scalable video windows displays real-time, full-screen video during capture, editing and output.
- During analog capture and output, video characteristics like brightness, contrast, saturation etc. can be manually set.
- When incorporating effects, an optimized hardware DV codec cuts rendering time up to 25%.
- Unique DV breakout box can be used either externally or internal in a 5-1/4" drive bay. The box features composite and S-Video in/out, DV in/out and analog stereo in/out. With the optional M2 module it can also output component video signals and input/output digital audio signals (RCA and optical).

Rex Edit Software

Rex Edit 2.0 is an easy to use capture and editing program that features a timeline interface and drag-and-drop capabilities. You can add titles and transitions with ease and render them in seconds – much faster than video editing packages currently available.

In addition to these time saving features, Rex Edit requires no rendering. You can preview audio and video and output the final production in real-time directly from the timeline without rendering. Rex Edit also offers clip logging, batch capture, and deck control.

Assuring the best quality audio output, Rex Edit avoids re-mixing and re-sampling keeping the audio in its native DV form. To do this, Rex Edit incorporates enhanced audio processing capabilities through an audio compression management (ACM) driver which overcomes the need to convert DV audio formats. In addition, multi-channel audio mixing capabilities allow you to add additional audio tracks even though the .AVI file format doesn't support it.

w/Rex Edit Software	**$\$1999^{00}$**
w/Rex Edit and Ulead Software	**$\$2249^{00}$**

Rex*fx* Hardware-based 3D Effects Engine/Display Card f/DVRex-M1

A truly affordable 3D DVE solution, Rexfx is a hardware-based 3D effects engine and transition package that provides editors with a near-real-time alternative to more expensive real-time DVEs. Rexfx includes a sophisticated collection of 40 pre-set 3D effects, including mosaic, double doors, spinning cube and environment effects like haze and lighting.

- State-of-the-art hardware 3D engine and 16 MB of on-board memory provide near real-time rendering times.
- Video overlay in high-resolution (up to 1600 x 1200 at 32 bits per pixel).
- Though optimized for use with RexEdit, also offers significant gains in productivity when using Adobe Premiere 5.1 and Ulead MediaStudio Pro
- Really shines when rendering complex transitions and effects. While simple transitions and effects are rendered two to three times faster than with software-based effects programs, more complex transitions requiring advanced geometry calculations are rendered 20 times faster.

$\$649^{00}$

Optional M2 DAT Pack **Digital Audio I/O and YUV Output**

The DAT Pack is for those who want a direct optical connection from the DVRex to DAT, mini disc players and high quality audio components. This solution provides a convenient way to keep audio in digital format throughout the editing process and offers copyright protection capabilities. The DAT Pack uses SPDIF input/output connectors and is easy to install. The DAT Pack also comes with the YUV video output option.

$\$449^{00}$

RexRack Digital Video Editing Workstation

An affordable turnkey video editing workstation, RexRack is is a preconfigured system that just needs to be plugged-in and you're ready to start editing. With the RexRack you can edit your analog and/or DV productions with ease and speed. The RexRack is a P2-450 PC with 128MB of RAM, 8GB of boot drive, 16GB of high speed storage in a durable rack-mount chassis. It includes the DVRex-M1 capture card and Rexfx 16MB high performance AGP graphics card/effects accelerator, Rex Edit editing software, and the full version of BorisFX 3.5.

$\$6995^{00}$ (Monitor Not Included)

TRUEVISION/Avid

TARGA 1000/MCXpress
Professional Video Production Workstation

Incorporating the award-winning TARGA 1000 video card and Avid MCXpress NT non-linear editing software, this fully-configured workstation meets the needs of production professionals, corporate communicators, educators and Internet authors.

TARGA 1000 Features:

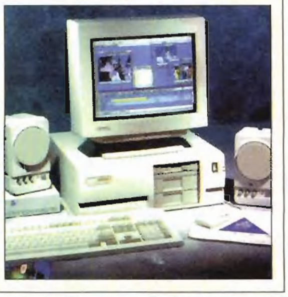
The TARGA 1000 delivers high processing speed for video and audio effects, titling and compositing. Capture, edit and playback full-motion, full-resolution 60 fields per second digital video with fully synchronized CD-quality audio.

- Compression can be adjusted on the fly to optimize for image quality and/or minimum storage space. Has composite and S-video inputs/outputs. Also available with component input/output (TARGA 1000 PRO).
- Genlock using separate sync input for working in professional video suites
- Audio is digitized at 44.1KHz or 48KHz sampling rates, for professional quality stereo sound. Delivers perfectly synchronized audio and video.

MCXpress Features:

The ideal tool for video and multimedia producers who require predictable project throughput and high-quality results when creating video and digital media for training, promotional/marketing material, local television and cable commercials, CD-ROM and Internet/intranet distribution. Based on Avid's industry-leading technology, it combines a robust editing functionality with a streamlined interface. Offers integration with third-party Windows applications, professional editing features, powerful media management, title tool and a plug-in effects architecture. It also features multiple output options including so you save time and money by reusing media assets across a range of video and multimedia projects.

TARGA 1000/MCXpress Turnkey Systems:



- 300-watt, 6-Bay Full Tower ATX Chassis
- Pentium ATX Motherboard with 512K Cache
- Pentium II- 300 MHz Processor
- Matrox Millenium II AGP 4MB WRAM Display Card
- 64MB 10ns 168-Pin (DIMM) S-DRAM
- Quantum Fireball 6.4GB IDE System Drive
- Seagate Barracuda External 9.1GB SCSI-3 Ultra Wide Capture Drive
- Adaptec AHA-2940UW Ultra Wide SCSI-3 Controller Card
- Teac CD-532e 32X EIDE Internal CD-ROM Drive • 3.5" Foppy Drive
- Altec-Lansing ACS-48 3-Piece Deluxe Speaker System
- Viewsonic G771 17-inch (1280 x 1024) Monitor (0.27mm dot pitch)
- Focus 2001A Keyboard • Microsoft MS Mouse
- Windows NT 4.0 Operating System Software
- Avid MCXpress for Windows NT
- Truevision TARGA 1000 or 1000 Pro Video Capture Card

With TARGA 1000	**$5995.00**
With TARGA 1000 Pro (component input/output)	**$6495.00**

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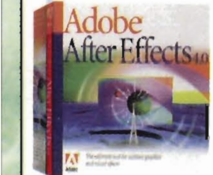
VIDEONICS
Effetto Pronto
Digital Video Effects and Compositing System for Macintosh

Effetto Pronto is a powerful combination of compositing and effects software, and a dedicated PCI hardware accelerator card. With a keyframe-based timeline compositing interface, Effetto Pronto blends all of the elements you want in your project.. video, graphics, 3D animation and anti-aliased text from the CG module. It even includes an audio track so you can animate to the beat of the music

- Work with an unlimited number of tracks at any resolution
- Effetto is resolution independent so you can mix and match a variety of formats and seamlessly bring them all together
- Color correction, chroma and luma keying, 3D warps with perspective and 3D animatable lights.
- Advanced character generator offers unlimited text overlap, free-form text positioning, point and click typing, font and color palette thumbnails, drop shadows and glows and much more.
- Provides true 3D perspectives for your work. Any object can be rotated or warped on its X, Y, or Z axis, and can be positioned anywhere in 3D space.

Adobe



After Effects 4.0
The Most Powerful Tool for Compositing, 2D Animation and Special Effects

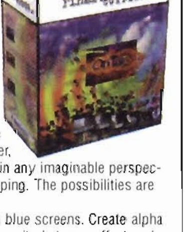
The industry-standard for professional motion graphics, After Effects is the most powerful tool available for producing high-end, unlimited composites, fluid animations, and sophisticated special effects. After Effects also generates the highest quality output at the desired resolution so it's the ideal design tool for film and video producers and editors, graphic designers, multimedia professionals and Web developers.

- Produce stunning special effects for broadcast, film, video and multimedia right from your desktop.
- Create animations for openers, bumpers, promos, commercials, music videos, titles, games, and more.
- Control layers with stunning precision. Combine unlimited layers of moving and still images.
- Add any number of keyframes, animate and apply special effects to each layer, and adjust those layers until the composite looks and moves exactly as you want.
- Enjoy precise control over every aspect of your composite—from sub-pixel positioning to controlling the shape and velocity of each animation path.

$599.95

ICE
Final Effects Complete

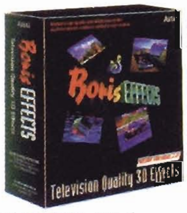
Final Effects Complete is a premium set of 60 motion graphics effects' plug-ins for Adobe After Effects which create professional special effects for film, video and other digital video production. Final Effects Complete offers the ability to generate rain, snow, fire, smoke, bubbles, liquid mercury distortions, explosions, 3D particles, liquid displacement and lighting effects, a multitude of stylistic transitions and other video effects.



- 60 Hollywood-style filters and transitions– the same ones used in MTV and Fox promos.
- Full-featured 2-D and 3-D particle system. Create rain, smoke, fire, bubbles, ball action, confetti, jet trails, water ripples, cubes, star bursts, hair, liquid mercury blobs, fireworks and more.
- Particle World, an amazing 3D particle system with Z-depth and full camera tilt movement, lets you spray particle objects around your 2D image layers.
- Design unlimited effect combinations with interactive control over subtle compositing details. Effects can be animated over time to add even more sophistication.
- Incredible one-of-a-kind stylistic effects. Burn your image away like melting film. Paint in brush strokes with a glue gun. Scatterize every pixel of an image. Create psychedelic flowing backgrounds and kaleidoscope patterns. Flip your image like a page turning in a book to reveal another image. Materialize an image into glass or a blobby substance over time.
- Dramatic or subtle lighting with spotlights, multi-colored light rays, light sweeps and light bursts. Time controls for echo and motion blurring effects.
- Bend, slant, split, ripple, stretch, tile, twist and crumple your image or movie in an infinite number of ways. Turn them into a movable sphere or cylinder, rotate or manipulate them in any imaginable perspective without destructive clipping. The possibilities are endless.
- Remove tell-tale wires from blue screens. Create alpha maps and sepia tones, composite between effect and source, and even rotate between color values

$799.95

ARTEL Boris Effects 3.5



A multi-channel DVE generator, complete with intraframe interpolation, matte manipulation, and multiple keyframes, Boris Effects lets you to create your own custom moves. Boris ships with a keyframe library of over 150 customizable effects including cubes, picture-in-picture, chroma keying, tilting,soft edges, masks, filters and compositing of unlimited track of video and graphics. Effects can be saved or used with different video source clips. Create 3D flying logo effects from PICT, TIFF, bitmap, VfW and QuickTime files using an embedded alpha channel Other features include borders and drop shadows which can be colorized and made soft and translucent, as well as control over camera position and light source with specular highlights. Based on a plug-in architecture, Boris closely integrates into all of today's popular non-linear systems. Once installed, it is easily accessed from their transitions and filters menu. It is not a background application and no extra memory is required.

- Blur and bevel filters.
- Control of image scale (size), positioning, depth & opacity.
- 3D effects with depth control to create cubes or slabs with up to 6 different videos, picts or colors on each of the 6 faces.
- Variable pivot points for unique rotation control.
- Add keyframeable specular and ambient light to your effect
- Cropping with full softness control of the edges and blend for really smooth soft wipe type of effects.
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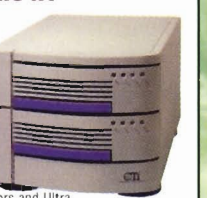

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EQUIPMENT LEASING AVAILABLE

Continued from page 41

which will give the illusion of a bubble inside again. If you absolutely must have a small sphere inside, then you will need to do three things: 1. Reduce the Refractive Index of both the Air surface and the inner sphere to below 1.0 (anything between 0 and 0.9999 has the same effect). 2. To counter the effect of the lower Air refraction, you will need to double the refraction value of the crystal. 3. Since the crystal is now more refractive, everything inside will appear much larger, so the inner sphere will need to be scaled by 50%. Also note that some earlier versions of LightWave do not save Refraction values of less than 1.0.

PART 3: Steamer

Numerous effects can be created with this setup, from the simple glow we have now, to marbled veins, and even mystical foggy effects. All these are possible by simply applying various textures to this inner sphere. For more volumetric effects, like those possible with Steamer, the process is similar.

WARNING: The following steps require extremely long render times!

25. To start, we'll need something to attach Steamer to. We only need to create a single volumetric, like what you would see around a single particle. In Modeler, simply create TWO points at 0,0,0 and save these as "NullPoints.lwo".

26. Load this NullPoints object into Layout and parent it to the crystal ball so it's centered inside. Next, apply the Steamy Particles displacement plug-in to the NullPoints, then go to the Steamer Panel.

27. In the Steamer Panel, activate the NullPoints object in the Edit Object section, and make sure it is turned ON in the settings section to the right. Since our crystal ball has a 10-cm radius, we'll need to make sure the steamer volume is the same size, so turn off the Automatic Sizing option, and then enter a value of 0.1 meters for the Radius. This will create a spherical steamer effect that is the same size as the crystal ball. Now just play with the settings until you have a steamer effect you like in the preview window

Steamer doesn't like to work on simple Null objects, so this is a quick alternative. Another alternative is to parent a point light inside the crystal ball and make it a steamer light.

28. If you were to try and render this now, the steamer effect would not be visible at all, since it's hidden behind the surface of the crystal ball. To make it visible, we need to use the Steamy Shader plug-in. This is where another little trick comes into play. Dissolve the CrystalMurk object 100% so it doesn't have any effect on the render, and make sure the refraction values of the crystal ball are normal again (2.0 for the glass, 1.0 for the air). Now, apply the Steamy Shader to the glass surface, and activate the Refract Objects option in its settings panel. This would seem the appropriate place to apply the shader, but a test render will show otherwise (Figure 18).

Note: You may need to deactivate shadows for this test, since they can cause LightWave to crash.

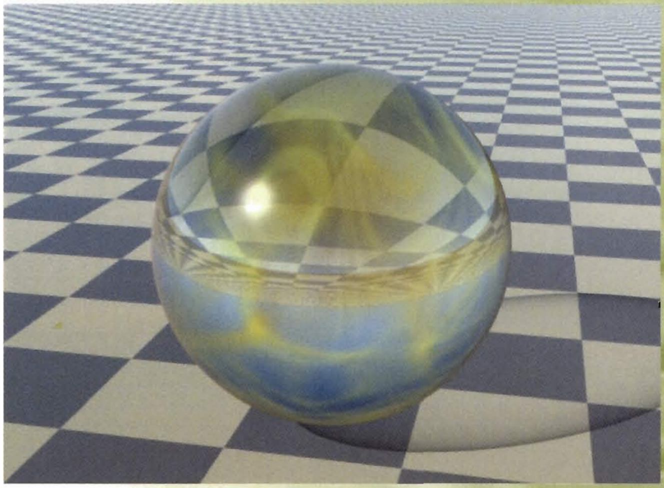

Figure 19: A fibrous steamer effect creates a nice foggy marble.

The Steamer effect is visible, but something really strange is going on as well. The shader is handling its own refraction, regardless of the raytracing settings in LightWave, and it doesn't fit well with other refracting surfaces. But, since this IS a shader, it can be seen IN other transparent surfaces. Let's fix this by moving the shader off the glass surface.

29. Select the CrystalMurk object and drop the Object Dissolve back down to 0%. Select this object's surface and remove all textures, leaving it as a 100% transparent surface, and setting all other texture attributes to 0%. Change the Refractive Index to 1.0 again, and then click the 'Advanced Options' tab. Apply the Steamy shader here, using the Refract Objects option.

30. Remove the Steamy Shader from the Glass surface, since we know we don't want it here anymore. Now we can do another render, which should look a bit better (Figure 19).

Since Steamer creates a three dimensional fog that can be textured and animated, all kinds of possibilities open up, including simply adding color to glass items, creating imperfect gems, cloudy water, or creating a magical crystal ball to see what the future holds. With some of these render times, you may finally have a chance to get some sleep again.

Dave Jerrard is the lead tutorialist for NewTekniques magazine, and is one of the authors of LightWave 3D Applied, available in bookstores now.

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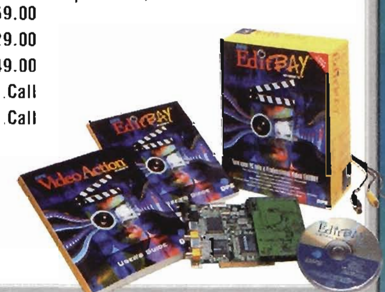

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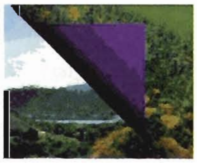

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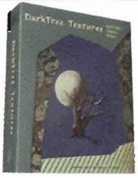

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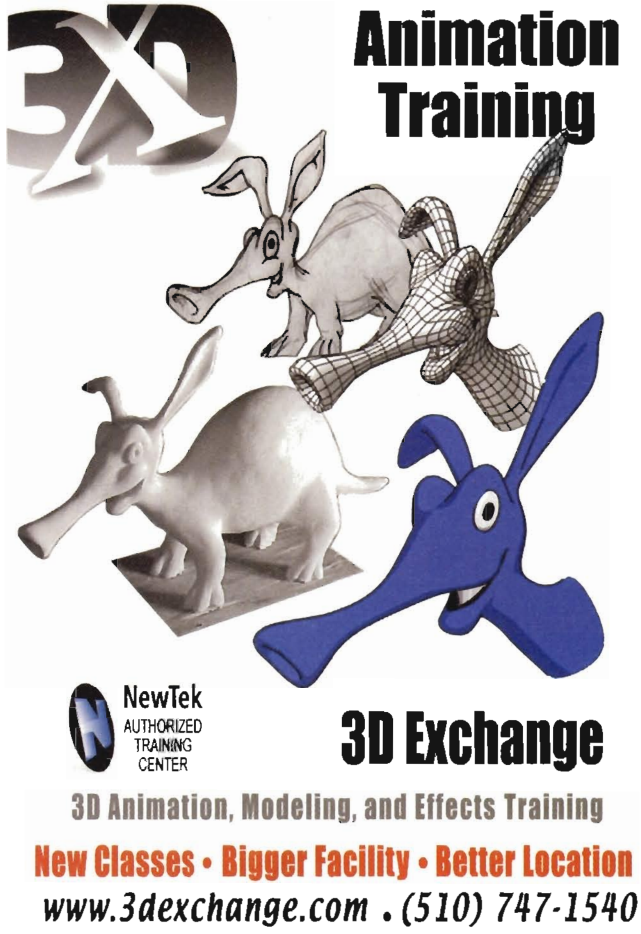

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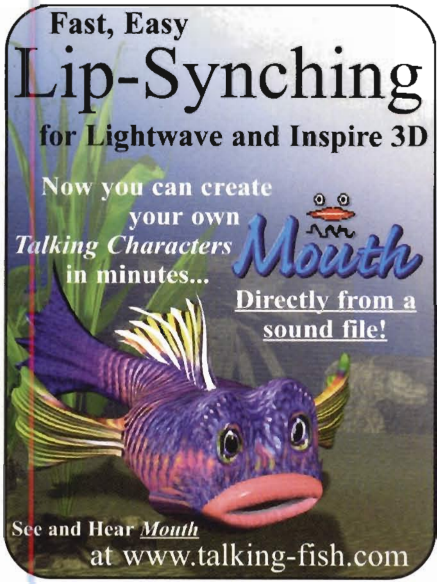
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MOJO

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Star Wars: Episode 1

Bring Me the Head of Jar-Jar Binks

Mojo's verdict is in on *Star Wars: Episode One.*

BY MOJO

Sixteen years of waiting ended at 3:30 am this morning, inside Mann's Chinese Theater in Hollywood. The sold out crowd was nearly intoxicated with delight that The Moment was finally upon us. Everyone agreed that THIS was truly the millennium party for our generation—nothing we might experience or witness on December 31st could satisfy our desire more than the return of *Star Wars*.

All the advance word was quite negative, and I admit that I walked into that theater prepared for the most depressing experience of my life. Maybe it helped—because I liked it.

In the last issue, I contemplated the 'proper' use of modern visual effects, and wished that someone would use all this wonderful 3D technology to create a truly unique vision. I hoped that someone would utilize this technology to not just bring us bigger explosions, but to stick pure imagination up on the screen in a way that was previously impossible.

Seemingly in answer to my challenge, George Lucas has done exactly that. *The Phantom Menace* brings us new worlds and environments on a scale never seen before. Just as the original *Star Wars* amazed us with sights and sounds that rattled our brains, this new film once again ups the ante and takes the world of special effects to the next level.

From completely photo-realistic creatures to breathtaking cityscapes, George Lucas and his team of visionaries have produced what may be the first true science fiction epic for the screen. I was constantly amazed as I watched what could only be described as space art being brought to life before my eyes. It is an accomplishment unmatched since *A New Hope*.

So, it was with great sorrow that as the film unfolded, I realized the only 3D work was in the visuals; the characters and story had been forged with tools that had yet to progress beyond the level of Deluxe Paint 2. The film is driven solely by plot, and a thin one at best. The heroic Jedi Knights do little more than perform as quarterbacks, clearing the way through armies of robots, over and over again, to usher the main characters from place to place. Natalie Portman does an admirable job filling exactly the same roll Carrie Fisher did; and our young hero, Anakin, does nothing more than be a kid.

One device that Lucas empowered several characters with is a quality I found very unsettling — the ability to be heroic without even trying.

Both Anakin and Jar-Jar save the day through a series of fortunate accidents, behaving with no more valor than a sandbag that stops a bullet. I'm sorry, but when I was a kid, I looked up to characters like Luke Skywalker and Han Solo because they *were* heroes—people who through deliberate effort and faith managed to save the galaxy, despite overwhelming odds. Is Lucas now trying to tell us that it is not through determination and perseverance, but by simply being yourself, that people become heroes? Is this *Star Wars*, or *Forrest Gump*? I, for one, would much rather tell children that trying to better yourself and rise to the occasion is what makes for true heroism—not that stumbling spastically through life will eventually be rewarded. Kids deserve heroes that they can look up to - not computer generated morons.

Speaking of Jar-Jar, Lucas has defended his film against negative criticism by saying that he intended to make a "kid's movie." Since when is this an excuse for stupidity? Films like *Toy Story, The Lion King, Snow White* and many others were expressly made for children without talking down to them. These movies thrived on clever humor and situations, without sinking to the depths of belch jokes, doo-doo jokes and *Wayne's World* references. Why should a *Star Wars* film be any different? Grow up, George—your audience is smarter than you think. If the original *Star Wars* managed to succeed without this lowest common denominator sensibility, so can the rest.

While not intensely clever or original, the storyline did function well enough to get us from one eye-popping scene to the next. The final twenty minutes of the film are so visually arresting, that I was actually able to forgive that it was a complete and utter clone of the final scenes in *Return of the Jedi* (although the rip-off of the throne room sequence from *Star Wars* was going too far).

I'm hoping that Lucas will follow in his own twenty year old footsteps by seeking out other talented writers and directors for collaboration on the two remaining films. While he is an absolute master at his craft, there are areas he should be smart enough to know he needs assistance in. *The Phantom Menace* is an enjoyable, albeit simplistic, beginning to the saga. It could be argued that this is as it should be! Hopefully, as the central character, Anakin, grows up and finds his life more challenging and complex, the films will follow suit and mature into a series that provides a New Hope not just for us, but for Hollywood itself.

Mojo is a senior supervising animator at Foundation Imaging

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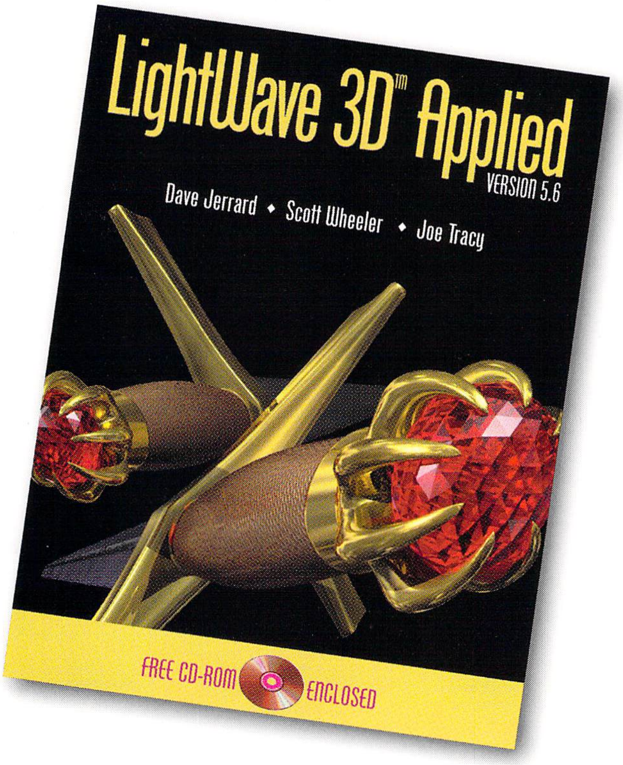

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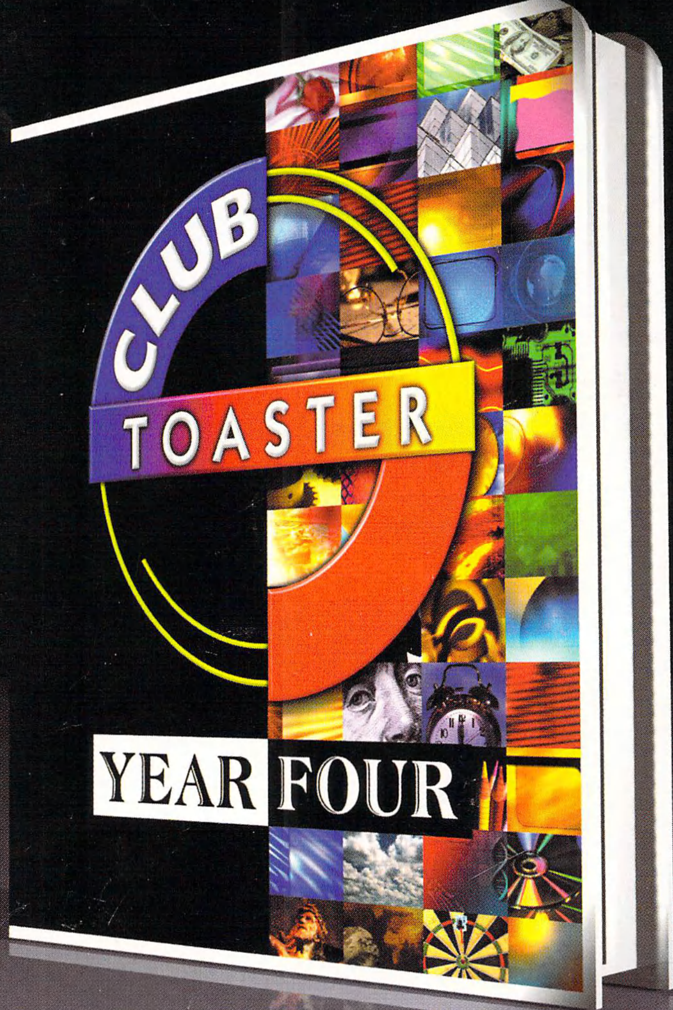

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